

List of Appendices

- APPENDIX A:** Sample Forms for Fulfilling the Requirements of the Healthy Schools Act
- APPENDIX B:** Pesticides Exempt from the Healthy Schools Act Right-to-Know requirements
- APPENDIX C:** California Youth Authority Guidelines
- APPENDIX D:** Text of the Healthy Schools Act Of 2000 (Chapter 718, Statutes Of 2000)
- APPENDIX E:** School District IPM Policies Examples
- APPENDIX F:** IPM-Related Curricula and Resources for the Classroom
- APPENDIX G:** Pesticide Information Resources
- APPENDIX H:** Recommended Reading
- APPENDIX I:** Sample IPM Contracts
- APPENDIX J:** Establishing Integrated Pest Management Policies and Programs: A Guide for Public Agencies
- APPENDIX K:** How to Collect and Preserve Specimens for Identification
- APPENDIX L:** Pest Management Assessment Tool
- APPENDIX M:** Monitoring Forms
- APPENDIX N:** Inspection Checklist for Detecting Structural Decay and Structural Pest Damage
- APPENDIX O:** Training and Licensing Opportunities
- APPENDIX P:** Pesticide Safety Information Series N

Sample letter explaining annual written notification and individual application registry: For Parents

Dear Parent or Guardian,

The Healthy Schools Act of 2000 was signed into law in September 2000 and requires that all schools provide parents or guardians of students with annual written notification of expected pesticide use on school sites. The notification will identify the active ingredient or ingredients in each pesticide product and will include the Internet address (<http://www.schoolipm.info/>) for further information on pesticides and their alternatives. We will send out annual notifications starting _____ [DATE] _____.

Parents or guardians may request prior notification of individual pesticide applications at the school site. Beginning _____ [DATE] _____, people listed on this registry will be notified at least 72 hours before pesticides are applied. If you would like to be notified every time we apply a pesticide, please complete and return the form below and mail it to:

[SCHOOL OFFICIAL, ADDRESS]

If you have any questions, please contact

[SCHOOL OFFICIAL]

at [PHONE]

Sincerely,

[NAME OF SCHOOL PRINCIPAL]

SAMPLE

Request for Individual Pesticide Application Notification

[NAME OF SCHOOL]

I understand that, upon request, the school district is required to supply information about individual pesticide applications at least 72 hours before application. I would like to be notified before each pesticide application at this school.

I would prefer to be contacted by (circle one): U.S. Mail E-mail Phone

Please print neatly:

Name of Parent/Guardian: _____ Date: _____

Address: _____

Day Phone:() _____ Evening Phone:() _____

E-mail: _____

Return to

[SCHOOL CONTACT NAME, ADDRESS]

Dear Parent or Guardian,

The Healthy Schools Act of 2000 was signed into law in September 2000 and requires that all schools provide parents or guardians of students with annual written notification of expected pesticide use on school sites. The notification will identify the active ingredient or ingredients in each pesticide product and will include the Internet address (<http://www.schoolipm.info/>) for further information on pesticides and their alternatives. We will send out annual notifications starting _____.

Parents or guardians may request prior notification of individual pesticide applications at the school site. Beginning _____, people listed on this registry will be notified at least 72 hours before pesticides are applied. If you would like to be notified every time we apply a pesticide, please complete and return the form below and mail it to:

If you have any questions, please contact

Sincerely,

Request for Individual Pesticide Application Notification

[NAME OF SCHOOL]

I understand that, upon request, the school district is required to supply information about individual pesticide applications at least 72 hours before application. I would like to be notified before each pesticide application at this school.

I would prefer to be contacted by (circle one): U.S. Mail E-mail Phone

Please print neatly:

Name of Parent/Guardian: _____ Date: _____

Address: _____

Day Phone:() _____ Evening Phone:() _____

E-mail: _____

Return to

Sample notice for specific pesticide application

Dear Parent or Guardian,

At your request, we are writing to notify you about a specific pesticide application(s) at your school. Please see below for detailed information. If you would like to see the Material Safety Data Sheet for this chemical, it is available at

[SCHOOL LOCATION]

If you have any questions, please contact

[SCHOOL DISTRICT REPRESENTATIVE NAME]
at [PHONE].

SAMPLE

Sincerely,

[NAME OF SCHOOL DISTRICT OFFICIAL]

Notice of Pesticide Application

Date Form Completed: _____

School Name: _____

Location of Planned Pesticide Application: _____

Building Name/Number: _____

Playground or Grounds Section: _____

Name of Pesticide To Be Applied: _____

Active Ingredient(s): _____

Planned Date/Time of Pesticide Application: _____

For more information regarding these pesticides and pesticide use reduction, visit the Department of Pesticide Regulation's Web site at <http://www.schoolipm.info/> and click School IPM Program.

Dear Parent or Guardian,

At your request, we are writing to notify you about a specific pesticide application(s) at your school. Please see below for detailed information. If you would like to see the Material Safety Data Sheet for this chemical, it is available at

If you have any questions, please contact

Sincerely,

Notice of Pesticide Application

Date Form Completed: _____

School Name: _____

Location of Planned Pesticide Application: _____

Building Name/Number: _____

Playground or Grounds Section: _____

Name of Pesticide To Be Applied: _____

Active Ingredient(s): _____

Planned Date/Time of Pesticide Application: _____

For more information regarding these pesticides and pesticide use reduction, visit the Department of Pesticide Regulation's Web site at <http://www.schoolipm.info/> and click School IPM Program.

Sample annual notification of planned pesticide use

Dear Parent or Guardian,

The Healthy Schools Act of 2000 requires all California school districts to notify parents and guardians of pesticides they expect to apply during the year. We intend to use the following pesticides in your school this year:

Name of Pesticide (Common Name)	Active Ingredient(s)

SAMPLE

You can find more information regarding these pesticides and pesticide use reduction at the Department of Pesticide Regulation's Web site at <http://www.schoolipm.info/>

If you have any questions, please contact

[NAME OF SCHOOL DISTRICT OFFICIAL]

at [PHONE].

Dear Parent or Guardian,

The Healthy Schools Act of 2000 requires all California school districts to notify parents and guardians of pesticides they expect to apply during the year. We intend to use the following pesticides in your school this year:

Name of Pesticide (Common Name)	Active Ingredient(s)

You can find more information regarding these pesticides and pesticide use reduction at the Department of Pesticide Regulation's Web site at <http://www.schoolipm.info/>

If you have any questions, please contact

WARNING

PESTICIDE-TREATED AREA

ADVERTENCIA

AREA TRATADA CON PESTICIDA

Name of Pesticide

1 _____
2 _____
3 _____
4 _____

Nombre del Pesticida

1 _____
2 _____
3 _____
4 _____

Manufacturer's Name; USEPA Registration No.

1 _____
2 _____
3 _____
4 _____

Nombre del Fabricante; No. de Registro de USEPA

1 _____
2 _____
3 _____
4 _____

Intended Application Date _____

Fecha Propuesta de Aplicacion _____

Application Date _____

Fecha de la Aplicacion _____

Treated Areas; Reason for Treatment

Areas Tratada; Razon de la Aplicacion

School Name:

Nombre de la Escuela:

ALWAYS BE SAFE

1. If you need more information ask

Name: _____

Title: _____

2. Do not play on the treated area
3. Wash your hands and exposed skin
if you touch the treated area

1. Si necesita más información pregunte

Nombre: _____

Título: _____

2. No juegue en el área tratada
3. Lávese las manos y la piel expuesta si
usted toca el área tratada

For record keeping only per Education Code requirement

Amount of Pesticide Used: _____

Pesticides Exempt from the Healthy Schools Act Right-to-Know Requirements



Pesticides Exempt

**from the School Posting, Notification, and
Recordkeeping Requirements of the
Healthy Schools Act of 2000 (HSA)**

To determine whether a particular pesticide product is exempt from the recordkeeping, posting and notification requirements of the HSA, answer the following questions.
Exemptions notwithstanding, DPR recommends that schools keep complete records of *all* pest management activities as part of a sound integrated pest management program.

- 1.) Is the product an antimicrobial (including sanitizers, disinfectants, and medical sterilants)?**

Note: The federal language defining antimicrobial pesticides is attached (7 USC 136[mm]). If you can't tell from the label, you can look up specific products on DPR's website at <http://www.cdpr.ca.gov/docs/label/prodnam.htm>

YES: EXEMPT from HSA recordkeeping, posting, and notification requirements (sections 17611 and 17612)

NO: GO ON TO THE NEXT STEP

- 2.) Is the product a self-contained bait or trap?**

Note: Pending further clarification of the law, determining whether a bait or trap is "self-contained" is the responsibility of the user.

YES: EXEMPT from HSA recordkeeping, posting, and notification requirements

NO: GO ON TO THE NEXT STEP

3.) Is the product a gel or paste deployed as crack and crevice treatments?

Notes:

- "Gel or paste" refers to the formulation type. If in doubt, check the label or the DPR databases at <http://www.cdpr.ca.gov/docs/label/m4.htm>
- "Crack and crevice treatment" is defined under the HSA section 17608[b] (attached).

YES: EXEMPT from HSA recordkeeping, posting, and notification requirements

NO: GO ON TO THE NEXT STEP

4.) Is the product federally registered? (That is, do you see ☐ EPA Reg. No. ☐ somewhere on the label?)

YES: GO TO THE NEXT STEP

NO: If the product is not registered, there are two possibilities:

A.) *The product is illegal for use as a pesticide.*

-OR-

B.) *The product is exempt from registration under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) section 25(b), and is **EXEMPT from HSA recordkeeping, posting, and notification requirements.** (GO ON TO STEP 5 to decide if product is 25(b) exempt)*

Note: California has similar but stricter regulations on exemption from registration ☐ see attached 3 CCR 6147.

5.) Is the product exempt from registration under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) section 25(b)?

Note: Very few products are exempt from registration.

To find out whether the product is 25(b) exempt, check the ingredients listed on the label. All active ingredients and inert ingredients should be listed. All active ingredients must be listed as exempt in the federal regulations (see attached list of exempt active ingredients or <http://www.epa.gov/pesticides/biopesticides/otherdocs/25blist.htm>), and all inert ingredients must be category "4A" inerts (see attached list of 4A inerts or <http://www.epa.gov/oppbppd1/biopesticides/otherdocs/list4adocs.htm>). See 40 CFR 152.25 (attached). These federally exempt products are also exempt from California registration if the criteria outlined in California Notice to Registrants 2000-6 are met (see <http://www.cdpr.ca.gov/docs/canot/ca00-6.htm>).

YES: EXEMPT from HSA recordkeeping, posting, and notification requirements

NO: NOT EXEMPT. All other registered pesticide products are subject to the posting, recordkeeping, and notification requirements of the Healthy Schools Act of 2000. That is, the product is

- not exempt from registration,
- legally registered at the state and federal levels,
- not a self-contained bait or trap,
- not an antimicrobial, and
- not a gel/paste used for crack and crevice treatments.

Legislative text from the Healthy Schools Act of 2000 pertaining to pesticides exempted from the notification, posting, and recordkeeping requirements

17610.5. Sections 17611 and 17612 shall not apply to a pesticide product deployed in the form of a self-contained bait or trap, to gel or paste deployed as a crack and crevice treatment, to any pesticide exempted from regulation by the United States Environmental Protection Agency pursuant to the Federal Insecticide, Fungicide, and Rodenticide Act (7 U.S.C. Sec. 25 (b)), or to antimicrobial pesticides, including sanitizers and disinfectants.

Definition of crack and crevice treatments under the Healthy Schools Act of 2000

17609. The definitions set forth in this section govern the construction of this article unless the context clearly requires otherwise:

- (a) "Antimicrobial" means those pesticides defined by the Federal Insecticide, Fungicide, and Rodenticide Act (7 U.S.C. Sec. 136(mm)).
 - (b) "Crack and crevice treatment" means the application of small quantities of a pesticide consistent with labeling instructions in a building into openings such as those commonly found at expansion joints, between levels of construction and between equipment and floors...
-

Definition of antimicrobial pesticides under 7 U.S.C. 136

(mm) Antimicrobial pesticide

(1) In general

The term "antimicrobial pesticide" means a pesticide that-

- (A) is intended to —
 - (i) disinfect, sanitize, reduce, or mitigate growth or development of microbiological organisms; or
 - (ii) protect inanimate objects, industrial processes or systems, surfaces, water, or other chemical substances from contamination, fouling, or deterioration caused by bacteria, viruses, fungi, protozoa, algae, or slime; and
- (B) in the intended use is exempt from, or otherwise not subject to, a tolerance under section 346a of title 21 or a food additive regulation under section 348 of title 21.

(2) Excluded products

The term "antimicrobial pesticide" does not include -

- (A) a wood preservative or antifouling paint product for which a claim of pesticidal activity other than or in addition to an activity described in paragraph (1) is made;
- (B) an agricultural fungicide product; or
- (C) an aquatic herbicide product.

(3) Included products

The term "antimicrobial pesticide" does include any other chemical sterilant product (other than liquid chemical sterilant, products exempt under subsection (u) of this section), any other disinfectant product, any other industrial microbiocide product, and any other preservative product that is not excluded by paragraph (2).

Pesticide active ingredients listed as exempt from federal registration under FIFRA 25(b).
See 40 CFR 152.25 (below) for details.

Castor oil (U.S.P. or equivalent)	Linseed oil
Cedar oil	Malic acid
Cinnamon and cinnamon oil	Mint and mint oil
Citric acid	Peppermint and peppermint oil
Citronella and citronella oil	2-Phenethyl propionate (2-phenylethyl propionate)
Cloves and clove oil	Potassium sorbate
Corn gluten meal	Putrescent whole egg solids
Corn oil	Rosemary and rosemary oil
Cottonseed oil	Sesame (includes ground sesame plant) and sesame oil
Dried blood	Sodium chloride (common salt)
Eugenol	Sodium lauryl sulfate
Garlic and garlic oil	Soybean oil
Geraniol	Thyme and thyme oil
Geranium oil	White pepper
Lauryl sulfate	Zinc metal strips (consisting solely of zinc metal and impurities)
Lemongrass oil	

Pesticide inert ingredients on the U.S. EPA □4A□ inert list.

See September 28, 1994 Federal Register (59 FR 49400) for details.

Acetic acid	Dextrin	Oyster shells
Agar	Dextrose	Paper
Alfalfa	Dolomite	Paprika
Alfalfa meal	Douglas-fir bark, ground	Paraffin wax
Almond hulls	Eggs	Peanut butter
Almond shells	Egg Shells	Peanut oil
Alpha cellulose	Edible fish meal	Peanuts
Apple pomace	Edible fish oil	Peanut shells
Attapulgite-type clay	Flour	Peat moss
Beef fat	Fuller's earth	Pecan shell flour
Beeswax	Gelatin	Pectin
Beet powder	Glue, as depolymerized animal collagen	Polyethylene film
Bentonite	Glycerin	Polyethylene pellets
Bone Meal	Granite	Potatoes
Bran	Grape pomace	Pumice
Bread crumbs	Graphite	Raisins
Calcareous shale	Ground oats	Red cedar chips
Calcite	Guar gum	Red dog flour
Calcium carbonate	Gum arabic	Rice
Canary seed	Gum tragacanth	Rice hulls
Cane syrup	Gypsum	Rubber
Carbon dioxide	Hearts of corn flour	Rye Flour
Cardboard	Hydrogenated vegetable oils	Safflower oil
Carrageenan	Honey	Sawdust
Carrots	Invert sugar	Seaweed, edible
Casein	Invert syrup	Shale
Cheese	Kaolinite-type clay	Soapstone
Chlorophyll	Lactose	Sodium bicarbonate
Cinnamon	Lanolin	Sodium chloride
Citric acid	Lard	Sorbitol
Citrus meal	Latex	Soybean hulls
Citrus pectin	Lecithin	Soybean meal
Citrus pulp	Lime	Soybean oil
Clam shells	Limestone	Soy flour
Cloves	Linseed oil	Soy protein
Cocoa	Malt flavor	Sucrose
Cocoa shells	Meat meal	Sugarbeet meal
Coco shell flour	Meal scraps	Sunflower seeds
Cod liver oil	Medicated feed	Tallow
Coffee grounds	Mica	Vanillin
Cookies	Milk	Vermiculite
Cork	Millet seed	Vitamin C
Corn	Mineral oil, U.S.P.	Vitamin E
Corn cobs	Molasses	Walnut flour
Corn flour	Montmorillonite- type clay	Walnut shells
Corn meal	Nitrogen	Water
Corn oil	Nutria meat	Wheat
Cornstarch	Nylon	Wheat germ oil
Corn syrup	Oatmeal	Whey
Cotton	Oats	Wintergreen oil
Cottonseed meal	Olive oil	Wool
Cottonseed oil	Onions	Xanthan gum
Cracked oats	Orange pulp	Yeast
Cracked wheat		

Federal regulations pertaining to exemption from registration under FIFRA 25(b)

(40 CFR 152.25)

Code of Federal Regulations

Title 40, Volume 16

Sec. 152.25 Exemptions for pesticides of a character not requiring FIFRA regulation.

The pesticides or classes of pesticides listed in this section have been determined to be of a character not requiring regulation under FIFRA, and are therefore exempt from all provisions of FIFRA when intended for use, and used, only in the manner specified.

- (a) Treated articles or substances. An article or substance treated with, or containing, a pesticide to protect the article or substance itself (for example, paint treated with a pesticide to protect the paint coating, or wood products treated to protect the wood against insect or fungus infestation), if the pesticide is registered for such use.
- (b) Pheromones and pheromone traps. Pheromones and identical or substantially similar compounds labeled for use only in pheromone traps (or labeled for use in a manner which the Administrator determines poses no greater risk of adverse effects on the environment than use in pheromone traps), and pheromone traps in which those compounds are the sole active ingredient(s).
 - (1) For the purposes of this paragraph, a pheromone is a compound produced by an arthropod which, alone or in combination with other such compounds, modifies the behavior of other individuals of the same species.
 - (2) For the purposes of this paragraph, a synthetically produced compound is identical to a pheromone only when their molecular structures are identical, or when the only differences between the molecular structures are between the stereochemical isomer ratios of the two compounds, except that a synthetic compound found to have toxicological properties significantly different from a pheromone is not identical.
 - (3) When a compound possesses many characteristics of a pheromone but does not meet the criteria in paragraph (a)(2) of this section, it may, after review by the Agency, be deemed a substantially similar compound.
 - (4) For the purposes of this paragraph, a pheromone trap is a device containing a pheromone or an identical or substantially similar compound used for the sole purpose of attracting, and trapping or killing, target arthropods. Pheromone traps are intended to achieve pest control by removal of target organisms from their natural environment and do not result in increased levels of pheromones or identical or substantially similar compounds over a significant fraction of the treated area.
- (c) Preservatives for biological specimens.
 - (1) Embalming fluids.
 - (2) Products used to preserve animal or animal organ specimens, in mortuaries, laboratories, hospitals, museums and institutions of learning.
 - (3) Products used to preserve the integrity of milk, urine, blood, or other body fluids for laboratory analysis.
- (d) Vitamin hormone products. Vitamin hormone horticultural products consisting of mixtures of plant hormones, plant nutrients, inoculants, or soil amendments, which meet the following criteria:
 - (1) The product, in the undiluted package concentration at which it is distributed or sold, meets the criteria of Sec. 156.10(h)(1) of this chapter for Toxicity Category III or IV; and
 - (2) The product is not intended for use on food crop sites, and is labeled accordingly.
- (e) Foods. Products consisting of foods and containing no active ingredients, which are used to attract pests.
- (f) Natural cedar.
 - (1) Natural cedar blocks, chips, shavings, balls, chests, drawer liners, paneling, and needles that meet all of the following criteria:
 - (i) The product consists totally of cedarwood or natural cedar.
 - (ii) The product is not treated, combined, or impregnated with any additional substance(s).
 - (iii) The product bears claims or directions for use solely to repel arthropods other than ticks or to retard mildew, and no additional claims are made in sale or distribution. The labeling must be limited to specific arthropods, or must exclude ticks if any general term such as "arthropods," "insects," "bugs," or any other broad inclusive term, is used. The exemption does not apply to natural cedar products claimed to repel ticks.
 - (2) The exemption does not apply to cedar oil, or formulated products which contain cedar oil, other cedar extracts, or ground cedar wood as part of a mixture.
- (g) Minimum risk pesticides—

- (1) Exempted products. Products containing the following active ingredients are exempt from the requirements of FIFRA, alone or in combination with other substances listed in this paragraph, provided that all of the criteria of this section are met.

Castor oil (U.S.P. or equivalent)
Cedar oil
Cinnamon and cinnamon oil
Citric acid
Citronella and citronella oil
Cloves and clove oil
Corn gluten meal
Corn oil
Cottonseed oil
Dried blood
Eugenol
Garlic and garlic oil
Geraniol
Geranium oil
Lauryl sulfate
Lemongrass oil
Linseed oil
Malic acid
Mint and mint oil
Peppermint and peppermint oil
2-Phenethyl propionate (2-phenylethyl propionate)
Potassium sorbate
Putrescent whole egg solids
Rosemary and rosemary oil
Sesame (includes ground sesame plant) and sesame oil
Sodium chloride (common salt)
Sodium lauryl sulfate
Soybean oil
Thyme and thyme oil
White pepper
Zinc metal strips (consisting solely of zinc metal and impurities)

- (2) Permitted inerts. A pesticide product exempt under paragraph (g)(1) of this section may only include inert ingredients listed in the most current List 4A. This list is updated periodically and is published in the Federal Register. The most current list may be obtained by writing to Registration Support Branch (4A Inerts List) Registration Division (7505C), Office of Pesticide Programs, Environmental Protection Agency, 401 M St., SW., Washington DC 20460.
- (3) Other conditions of exemption. All of the following conditions must be met for products to be exempted under this section:
- (i) Each product containing the substance must bear a label identifying the name and percentage (by weight) of each active ingredient and the name of each inert ingredient.
 - (ii) The product must not bear claims either to control or mitigate microorganisms that pose a threat to human health, including but not limited to disease transmitting bacteria or viruses, or claims to control insects or rodents carrying specific diseases, including, but not limited to ticks that carry Lyme disease.
 - (iii) The product must not include any false and misleading labeling statements, including those listed in 40 CFR 156.10(a)(5)(i) through (viii).

[53 FR 15977, May 4, 1988, as amended at 59 FR 2751, Jan. 19, 1994; 61 FR 8878, Mar. 6, 1996]

California regulations pertaining to pesticides exempt from registration (3 CCR 6147)

Title 3 (Food and Agricultural Code), Division 6, Chapter 2 Section 6147. Exempted Pesticide Products.

- (a) Manufacturers of, importers of, and dealers in the following pesticide products or classes of pesticide products are exempt from the requirements of Division 7 of the Food and Agricultural Code, provided the pesticide products are exempt pursuant to section 25(b)(2) of the Federal Insecticide, Fungicide, and Rodenticide Act [7 U.S.C. sec. 136w(b)(2)]:
- (1) Pheromones and identical or substantially similar compounds labeled for use only in pheromone traps (or labeled for use in a manner which the Director determines poses no greater risk of adverse effects on the environment than use in pheromone traps), and pheromone traps in which those compounds are the sole active ingredient(s), as specified in 40 Code of Federal Regulations 152.25(b).
 - (2) Preservatives for biological specimens, including:
 - (A) Embalming fluids;
 - (B) Products used to preserve animal or animal organ specimens, in mortuaries, laboratories, hospitals, museums and institutions of learning; and
 - (C) Products used to preserve the integrity of milk, urine, blood, or other body fluids for laboratory analysis.
 - (3) Products consisting of foods that are used to attract pests and which contain no active ingredient(s).
 - (4) (A) Natural cedar blocks, chips, shavings, balls, chests, drawer liners, paneling, and needles that meet all of the following criteria:
 1. The product consists totally of cedar wood or natural cedar.
 2. The product is not treated, combined, or impregnated with any additional substance(s).
 3. The product bears claims or directions for use solely to repel arthropods other than ticks or to retard mildew, and no additional claims are made in sale or distribution. The labeling must be limited to specific arthropods, or must exclude ticks if any general term such as "arthropods," "insects," "bugs," or any other broad inclusive term is used.(B) The exemption does not apply to natural cedar products claimed to repel ticks. The exemption also does not apply to cedar oil, or formulated products, which contain cedar oil, other cedar extracts, or ground cedar wood as part of a mixture.
 - (5) (A) Products containing the following active ingredients alone or in combination with other substances listed in paragraph (5)(A), provided that all the criteria specified in paragraphs (5)(C) and (5)(D) are met:

Castor oil (U.S.P. or equivalent)
Cedar oil ¹
Cinnamon
Cinnamon oil ¹
Citric acid ¹
Citronella (non-topical uses only)
Citronella oil (non-topical uses only)
Cloves ²
Clove oil ^{1, 2}
Corn gluten meal
Corn oil
Cottonseed oil
Dried blood
Eugenol ^{1, 2}
Garlic
Garlic oil ¹
Geraniol ²
Geranium oil ²
Lauryl sulfate ¹
Lemongrass oil ¹
Linseed oil
Malic acid ¹
Mint

Mint oil ¹
 Peppermint ²
 Peppermint oil ^{1, 2}
 2-Phenethyl propionate (2-phenylethyl propionate) ¹
 Potassium sorbate ¹
 Putrescent whole egg solids
 Rosemary ²
 Rosemary oil ^{1, 2}
 Sesame (includes ground sesame plant)
 Sesame oil
 Sodium chloride (common salt)
 Sodium lauryl sulfate ^{1, 2}
 Soybean oil
 Thyme ²
 Thyme oil ^{1, 2}
 White pepper ¹
 Zinc metal strips (consisting solely of zinc metal and impurities)

¹ Products containing 8.5% or more of this active ingredient in the formulated product must at a minimum bear the signal word "CAUTION," the phrase "Keep Out of Reach of Children," appropriate precautionary language, and a requirement for appropriate protective eyewear and gloves.

² Products containing this active ingredient intended for topical application to human skin must at a minimum bear the signal word "CAUTION," the phrase "Keep Out of Reach of Children," a dermal sensitization precautionary statement, a prohibition against application to the hands of children, and use directions requiring adult supervision during application to children.

- (B) Topical use products containing less than or equal to 1% of the following active ingredients alone or in combination with each other, provided: the product label carries as a minimum the signal word "CAUTION," the phrase "Keep Out Of Reach of Children," a dermal sensitization precautionary statement, a prohibition against application to the hands of children, and use directions requiring adult supervision during application to children, and (ii) all the criteria specified in paragraphs (5)(C) and (5)(D) are met:
 Citronella
 Citronella oil
- (C) A pesticide product exempt under paragraphs (5)(A) and (5)(B) of subsection (a) may include as inert ingredients only those substances listed in the U.S. Environmental Protection Agency's most current List 4A "Inerts of Minimal Concern." U.S. EPA's list of minimal risk inert ingredients is updated periodically and is published in the Federal Register.
- (D) In addition, all of the following conditions must be met for products to be exempted under subsection (a)(5):
 1. Each product containing the substance must bear a label identifying the name and percentage (by weight) of each active ingredient and the name of each inert ingredient.
 2. The product must not bear claims either to control or mitigate microorganisms that pose a threat to human health, including but not limited to disease transmitting bacteria or viruses, or claims to control insects or rodents carrying specific diseases, including, but not limited to ticks that carry Lyme disease.
 3. The product must not include any false and misleading labeling statements, including those listed in 40 CFR 156.10(a)(5)(i) through (viii).
- (b) Whenever the manufacturer of, importer of, or dealer in any product exempted pursuant to this section has factual or scientific evidence of any adverse effect or risk to human health or the environment that has not previously been submitted to the department, the manufacturer, importer, or dealer shall report the evidence to the department within 60 days of learning of the information.

NOTE: Authority cited: Section 11456, 12781, and 12803, Food and Agricultural Code.
 Reference: Section 12803, Food and Agricultural Code.

California Youth Authority Guidelines

State of California Department of Health Services

M e m o r a n d u m

Date: August 27, 2001

To: John Brady, CHSA II
Department of the Youth Authority

From: Paul Fitzmaurice
Environmental Specialist IV
Institutions Program

Subject: Implementation of Healthy Schools Act-Youth Authority

In response to our recent conversation regarding the implementation of the Healthy Shools Act by the Youth Authority, we contacted representatives of the Department of Pesticide Regulation and the Department of Education and discussed the matter.

The law, designed to change pest control practices at schools to incorporate the least toxic means of control includes a section [Education Code, Article 4, Chapter 5, Part 10.5, Section 17612 (e)] in which California Youth Authority schools are instructed what measures are required to be taken by Youth Authority facilities to comply with the Act.

Specifically, the school administator is required to notify the chief medical officer (CMO) of the facility at least 72 hours prior to application of pesticides and the CMO is required to take all steps necessary to protect the health of the pupils in that facility. Guidelines were not developed to clarify this “all steps necessary”.

After consultation with affected agencies, we recommend that the following action be taken by Youth Authority facilities to comply with the Act. These measures, in our opinion, would be considered reasonable and would provide the required protection to the wards at the facility.

- The CMO of each facility should receive a list of all pesticides that would be anticipated to be used in the facility during the calendar year. Attached to the list should be a copy of the product label (or product EPA registration number), and the Material Safety Data Sheet (MSDS) for each item on the list. [California Code of Regulations (CCR), Title 3, Division 6, Chapter 3, section 6723]
- Existing law [Food and Agricultural Code (FAC), section 12973] requires any user of a pesticide to comply with the label.
- Existing law CCR, sections 6618, 6624 & 6627 detail notification, pesticide use records, and reporting requirements for licensed Pest Control Businesses (PCB), while FAC, section 13186 requires specific pesticide use information for school site applications by PCBs. Also, staff

assigned pest control duties and contracted pest control companies should provide the CMO 72-hour notice of specific pest control applications.

- The yearly list of pesticides anticipated to be used should be posted at the entry to the facility and a copy should be provided to all staff members.
- Existing regulations require employers to have a written training program and to assure employees are trained before handling any pesticide. [CCR, section 6724] Staff responsible for pest control applications should contact the local County Agricultural Commissioner's (CAC) Office for assistance with determining applicable pesticide regulations. Staff responsible for pest control applications should keep detailed records of material used (including product EPA registration number), amount used, application locations, pests controlled, and date of application.
- The CMO should thoroughly investigate any complaint or suspected illness due to application of a pesticide and take appropriate action (e.g. filing of pesticide illness report with local CAC).
- The purpose of the law is to reduce the use of toxic pesticides at a school site; facilities may wish to institute policies to stress integrated pest management (IPM) practices and to reduce the use of pesticides when such measures as sanitation and exclusion can help to achieve the desired control. Also, if a CMO reviews label and MSDS information (as well as accessing the Department of Pesticide Regulation's "School IPM" Web site at www.cdpr.ca.gov/docs/schoolipm) and determines that the use of a material presents an unacceptable risk or is inappropriate for the situation he/she should restrict its use.

It should be noted that the law exempts products that are deployed as self-contained baits or traps, gels or pastes deployed as "crack or crevice" treatments, and pesticides that are exempt from federal regulations, or to anti-microbial pesticides, including sanitizers and disinfectants.

If you have any questions please contact Mark Jeude at (916) 323-2758 or me at (916) 445-4409.

John Brady

Page 2

August 27, 2001

Text of the Healthy Schools Act of 2000

(Chapter 718, Statutes of 2000)

Assembly Bill No. 2260

CHAPTER 718

An act to add Section 48980.3 to, and to add Article 4 (commencing with Section 17608) to Chapter 5 of Part 10.5 of, the Education Code, and to add Article 17 (commencing with Section 13180) to Chapter 2 of Division 7 of the Food and Agricultural Code, relating to school safety.

[Approved by Governor September 25, 2000. Filed
with Secretary of State September 27, 2000.]

LEGISLATIVE COUNSEL'S DIGEST

AB 2260, Shelley. School safety.

Under existing law, the Department of Pesticide Regulation has primary responsibility for enforcing pesticide laws and regulations. Existing law establishes and maintains various programs to promote health and prevent disease.

This bill would establish the Healthy Schools Act of 2000. The bill would require that the preferred method of managing pests at schoolsites be effective least toxic pest management practices and would further require that the state take the necessary steps, pursuant to specified provisions, to facilitate the adoption of effective least management practices at schoolsites. The bill would require each schoolsite to maintain records of all pesticide use at the schoolsite for a period of 4 years and make the records available to the public upon request, thus imposing a state-mandated local program. The bill would require that licensed and certified pest control operators include information on any school pesticide application that they perform as part of their otherwise applicable pesticide use reporting requirements.

The bill would require, on an annual basis, the school district designee to provide to all staff and parents or guardians of pupils enrolled at a school written notification addressing, among other things, expected pesticide use, thus imposing a state-mandated local program. The bill would require that the recipients be afforded the opportunity to register with the school district to receive information regarding individual pesticide applications. The bill would require the school district designee to post warning signs prior to application of pesticides at a schoolsite, thus imposing a state-mandated local program.

The bill would require the Department of Pesticide Regulation to promote and facilitate the voluntary adoption of integrated pest management programs as specified, maintain an internet website, and establish an integrated pest management training program. The

bill would provide definitions of terms for the Healthy Schools Act of 2000.

The California Constitution requires the state to reimburse local agencies and school districts for certain costs mandated by the state. Statutory provisions establish procedures for making that reimbursement, including the creation of a State Mandates Claims Fund to pay the costs of mandates that do not exceed \$1,000,000 statewide and other procedures for claims whose statewide costs exceed \$1,000,000.

This bill would provide that, if the Commission on State Mandates determines that the bill contains costs mandated by the state, reimbursement for those costs shall be made pursuant to these statutory provisions.

The people of the State of California do enact as follows:

SECTION 1. Article 4 (commencing with Section 17608) is added to Chapter 5 of Part 10.5 of the Education Code, to read:

Article 4. Healthy Schools Act of 2000

17608. This article, Article 17 (commencing with Section 13180) of Chapter 2 of Division 7 of the Food and Agricultural Code, and Article 2 (commencing with Section 105500) of Chapter 76 of Division 103 of the Health and Safety Code, shall be known and cited as the Healthy Schools Act of 2000.

17609. The definitions set forth in this section govern the construction of this article unless the context clearly requires otherwise:

(a) “Antimicrobial” means those pesticides defined by the Federal Insecticide, Fungicide, and Rodenticide Act (7 U.S.C. Sec. 136(mm)).

(b) “Crack and crevice treatment” means the application of small quantities of a pesticide consistent with labeling instructions in a building into openings such as those commonly found at expansion joints, between levels of construction and between equipment and floors.

(c) “Emergency conditions” means any circumstances in which the school district designee deems that the immediate use of a pesticide is necessary to protect the health and safety of pupils, staff, or other persons, or the schoolsite.

(d) “School district designee” means the individual identified by the school district to carry out the requirements of this article at the schoolsite.

(e) “Schoolsite” means any facility used for public day care, kindergarten, elementary, or secondary school purposes. The term includes the buildings or structures, playgrounds, athletic fields,



school vehicles, or any other area of school property visited or used by pupils. “Schoolsite” does not include any postsecondary educational facility attended by secondary pupils or private day care or school facilities.

17610. It is the policy of the state that effective least toxic pest management practices should be the preferred method of managing pests at schoolsites and that the state, in order to reduce children’s exposure to toxic pesticides, shall take the necessary steps, pursuant to Article 17 (commencing with Section 13180) of Chapter 2 of Division 7 of the Food and Agricultural Code, to facilitate the adoption of effective least toxic pest management practices at schoolsites. It is the intent of the Legislature to encourage appropriate training to be provided to school personnel involved in the application of pesticide at a schoolsite.

17610.5. Sections 17611 and 17612 shall not apply to a pesticide product deployed in the form of a self-contained bait or trap, to gel or paste deployed as a crack and crevice treatment, to any pesticide exempted from regulation by the United States Environmental Protection Agency pursuant to the Federal Insecticide, Fungicide, and Rodenticide Act (7 U.S.C. Sec. 25 (b)), or to antimicrobial pesticides, including sanitizers and disinfectants.

17611. Each schoolsite shall maintain records of all pesticide use at the schoolsite for a period of four years, and shall make this information available to the public, upon request, pursuant to the California Public Records Act (Chapter 3.5 (commencing with Section 6250) of Division 7 of Title 1 of the Government Code). A schoolsite may meet the requirements of this section by retaining a copy of the warning sign posted for each application required pursuant to Section 17612, and recording on that copy the amount of the pesticide used.

17612. (a) The school district designee shall annually provide to all staff and parents or guardians of pupils enrolled at a schoolsite a written notification of the name of all pesticide products expected to be applied at the school facility during the upcoming year. The notification shall identify the active ingredient or ingredients in each pesticide product. The notice shall also contain the Internet address used to access information on pesticides and pesticide use reduction developed by the Department of Pesticide Regulation pursuant to Section 13184 of the Food and Agricultural Code and may contain other information deemed necessary by the school district designee. No other written notification of pesticide applications shall be required by this act except as follows:

(1) In the written notification provided pursuant to this subdivision, the school district designee shall provide the opportunity for recipients to register with the school district if they wish to receive notification of individual pesticide applications at the school facility. Persons who register for such notification shall be notified of

individual pesticide applications at least 72 hours prior to the application. The notice shall include the product name, the active ingredient or ingredients in the product, and the intended date of application.

(2) If a pesticide product not included in the annual notification is subsequently intended for use at the schoolsite, the school district designee shall, consistent with this subdivision and at least 72 hours prior to application, provide written notification of its intended use.

(b) The school designee shall make every effort to meet the requirements of this section in the least costly manner. Annual notification to parents and guardians shall be provided pursuant to Section 48980.3. Any other notification shall, to the extent feasible and consistent with the act adding this article, be included as part of any other written communication provided to individual parents or guardians. Nothing in this section shall require the school district designee to issue the notice through first-class mail, unless he or she determines that no other method is feasible.

(c) Pest control measures taken during an emergency condition as defined in Section 17609 shall not be subject to the requirements of paragraphs (1) and (2) of subdivision (a). However, the school district designee shall make every effort to provide the required notification for an application of a pesticide under emergency conditions.

(d) The school district designee shall post each area of the schoolsite where pesticides will be applied with a warning sign. The warning sign shall prominently display the term “Warning/Pesticide Treated Area” and shall include the product name, manufacturer’s name, the United States Environmental Protection Agency’s product registration number, intended date and areas of application, and reason for the pesticide application. The warning sign shall be visible to all persons entering the treated area and shall be posted 24 hours prior to the application and remain posted until 72 hours after the application. In case of a pest control emergency, the warning sign shall be posted immediately upon application and shall remain posted until 72 hours after the application.

(e) Subdivisions (a) and (d) shall not apply to schools operated by the California Youth Authority. The school administrator of a school operated by the California Youth Authority shall notify the chief medical officer of that facility at least 72 hours prior to application of pesticides. The chief medical officer shall take any steps necessary to protect the health of pupils in that facility.

(f) This section and Section 17611 shall not apply to activities undertaken at a school by participants in the state program of agricultural vocational education, pursuant to Article 7 (commencing with Section 52450) of Chapter 9 of Part 28, if the activities are necessary to meet the curriculum requirements prescribed in Section 52454. Nothing in this subdivision relieves

schools participating in the state program of agricultural vocational education of any duties pursuant to this section for activities that are not directly related to the curriculum requirements of Section 52454.

17613. Section 17612 shall not apply to any agency signatory to a cooperative agreement with the State Department of Health Services pursuant to Section 116180 of the Health and Safety Code.

SEC. 2. Section 48980.3 is added to the Education Code, to read:

48980.3. The notification required pursuant to Section 48980 shall include information regarding pesticide products as specified in subdivision (a) of Section 17612.

SEC. 3. Article 17 (commencing with Section 13180) is added to Chapter 2 of Division 7 of the Food and Agricultural Code, to read:

Article 17. Healthy Schools Act of 2000

13180. This article, Article 4 (commencing with Section 17608) of Chapter 5 of Part 10.5 of the Education Code, and Article 2 (commencing with Section 105500) of Chapter 7 of Division 103 of the Health and Safety Code, shall be known and may be cited as the Healthy Schools Act of 2000.

13181. Notwithstanding any other provision of law, for purposes of this article, “integrated pest management” means a pest management strategy that focuses on long-term prevention or suppression of pest problems through a combination of techniques such as monitoring for pest presence and establishing treatment threshold levels, using nonchemical practices to make the habitat less conducive to pest development, improving sanitation, and employing mechanical and physical controls. Pesticides that pose the least possible hazard and are effective in a manner that minimizes risks to people, property, and the environment, are used only after careful monitoring indicates they are needed according to preestablished guidelines and treatment thresholds. This definition shall apply only to integrated pest management at school facilities.

13182. It is the policy of the state that effective least toxic pest management practices should be the preferred method of managing pests at schoolsites and that the state, in order to reduce children’s exposure to toxic pesticides, shall take the necessary steps, pursuant to this article, to facilitate the adoption of effective least toxic pest management practices at schoolsites. It is the intent of the Legislature to encourage appropriate training to be provided to school personnel involved in the application of pesticide at a schoolsite.

13183. The Department of Pesticide Regulation shall, by July 1, 2001, promote and facilitate the voluntary adoption of integrated pest management programs for all school districts that voluntarily choose to do so. For these school districts, the department shall do all of the following:



(a) Establish an integrated pest management program for school districts consistent with Section 13181. In establishing the program, the department shall:

(1) Develop criteria for identifying least-hazardous pest control practices and encourage their adoption as part of an integrated pest management program at each schoolsite.

(2) Develop a model program guidebook that prescribes essential program elements for a school district that has adopted a least-hazardous integrated pest management program. At a minimum, this guidebook shall include guidance on all of the following:

(A) Adopting an IPM policy.

(B) Selecting and training an IPM coordinator.

(C) Identifying and monitoring pest populations and damage.

(D) Establishing a community-based school district advisory committee.

(E) Developing a pest management plan for making least-hazardous pest control choices.

(F) Contracting for integrated pest management services.

(G) Training and licensing opportunities.

(H) Establishing a community-based right-to-know standard for notification and posting of pesticide applications.

(I) Recordkeeping and program review.

(b) Make the model program guidebook available to school districts and establish a process for systematically updating the guidebook and supporting documentation.

13184. (a) In implementing Section 13183, the department shall establish and maintain an Internet website as a comprehensive directory of resources describing and promoting least-hazardous practices at schoolsites. The website shall also make available an electronic copy of the model program guidebook, its updates, and supporting documentation. The department shall also establish and maintain on its website an easily identified link that provides the public with all appropriate information regarding the public health and environmental impacts of pesticide active ingredients and ways to reduce the use of pesticides at school facilities.

(b) It is the intent of the Legislature that the state assist school districts to ensure that compliance with Section 17612 of the Education Code is simple and inexpensive. The department shall include in its website Internet-based links that allow schools to properly identify and list the active ingredients of pesticide products they expect to be applied during the upcoming year. Use of these links by schools is not mandatory but shall be made available to all schools at no cost. The department shall ensure that adequate resources are available to respond to inquiries from school facilities or districts regarding the use of integrated pest management practices.

13185. (a) The department shall establish an integrated pest management training program in order to facilitate the adoption of a model IPM program and least-hazardous pest control practices by school districts. In establishing the IPM training program, the department shall do all of the following:

(1) Adopt a “train-the-trainer” approach, whenever feasible, to rapidly and broadly disseminate program information.

(2) Develop curricula and promote ongoing training efforts in cooperation with the University of California and the California State University.

(3) Prioritize outreach on a regional basis first and then to school districts.

(b) Nothing in this article shall preclude a school district from adopting stricter pesticide use policies.

13186. (a) The Legislature finds and declares that the Department of Pesticide Regulation, pursuant to Section 12979 of the Food and Agricultural Code and Sections 6624 and 6627 of Title 3 of the California Code of Regulations, requires persons engaged for hire in the business of pest control to maintain records of pesticide use and report a summary of that pesticide use to the county agricultural commissioner or director. The Legislature further finds and declares that it is in the interest of the state, in implementing a school integrated pest management program pursuant to this article, to collect specified information on the use of pesticides at school facilities.

(b) The Department of Pesticide Regulation shall prepare a school pesticide use form to be used by licensed and certified pest control operators when they apply any pesticides at a schoolsite. The form shall include, for each application at a schoolsite, the name and address of the schoolsite, date and location of application, pesticide product name, and the quantity of pesticide used. Nothing in this section shall change any existing applicable pesticide use reporting requirements.

(c) On and after January 1, 2002, persons required to submit pesticide use records to the county agricultural commissioner or director shall complete and submit to the director the school pesticide use forms established pursuant to this section. The forms shall be submitted annually and may be submitted more often at the discretion of the pest control operator maintaining the forms.

13187. Section 13186 shall not apply to any agency signatory to a cooperative agreement with the State Department of Health Services pursuant to Section 116180 of the Health and Safety Code.

13188. The Director of Pesticide Regulation may adopt regulations to implement this article.

SEC. 4. Notwithstanding Section 17610 of the Government Code, if the Commission on State Mandates determines that this act contains costs mandated by the state, reimbursement to local

agencies and school districts for those costs shall be made pursuant to Part 7 (commencing with Section 17500) of Division 4 of Title 2 of the Government Code. If the statewide cost of the claim for reimbursement does not exceed one million dollars (\$1,000,000), reimbursement shall be made from the State Mandates Claims Fund.



Model School IPM Policy

This policy is based on IPM. It does not prohibit pesticide use. IPM does not exclude the use of pesticides, but it does encourage minimizing their use and using those that pose the least hazard. This language may be used as it appears here or it may be adapted. Some IPM policies are long and very detailed; others are more succinct. Samples in use in some California schools follow this model policy. The examples policies included are a fraction of the model policies in use by California schools. See our Web site at <http://www.schoolipm.info/> for more examples.

Introduction

The {insert name} School District recognizes that maintenance of a safe, clean and healthful environment for students and staff is essential to learning. It is the goal of the District to provide safe and effective, pest control while protecting students, staff, the environment, and District properties and assets.

The District adopts a Least-Hazardous Integrated Pest Management (IPM) Policy. It is the policy of the District to focus and develop long-term pest prevention methods and give “non-chemical” methods first consideration when selecting appropriate control measures. The full range of alternatives will be considered, giving preference to non-chemical methods, and then chemicals that pose the least hazard to people and the environment.

Comment: This paragraph states the intention of the district to adopt IPM.

Pest management objectives

Pests will be controlled to protect the health and safety of the students and staff; to maintain a productive learning environment; and, to maintain the integrity of the school buildings and grounds. Pest control will be economically feasible over the long term and efficacious. The Superintendent or designee shall ensure that the district follows IPM procedures so as to use the most appropriate and least-hazardous method of control. Sanitary measures shall be enforced and buildings regularly cleaned and repaired in order to prevent infestations, minimize the use of pesticides, and eliminate routine spraying.

Comment: This paragraph states that, to protect human health and environmental safety, the district plans to prevent pest infestations through sanitation and other practices consistent with IPM methods, and to eliminate routine spraying. It also notes that pest control should be economically feasible.

Definition of IPM

The Healthy Schools Act of 2000 defines IPM as “a pest management strategy that focuses on long-term prevention or suppression of pest problems through a combination of techniques such as monitoring for pest presence and establishing treatment threshold levels, using non-chemical practices to make the habitat less conducive to pest development, improving sanitation, and employing mechanical and physical controls. Pesticides that pose the least possible hazard and are

effective in a manner that minimizes risks to people, property and the environment, are used only after careful monitoring indicates that they are needed according to pre-established guidelines and treatment thresholds.” (Food and Agricultural Code section 13181)

Comment: This section defines IPM according to the Healthy Schools Act.

Elements of the Least-Hazardous IPM Policy

- Identifying and monitoring pests to determine pest population levels and identify decisions and practices that could affect pest populations.
- Setting of action levels to determine when vegetation or a pest population at a specific site cause(s) unacceptable economic or medical damage wherein corrective action should be taken.
- Modifying and/or eliminating pest habitats to deter pest populations and minimize pest infestations.
- Considering use of a range of potential treatments for the pest problem, including physical, horticultural, and biological methods of pest control.
- Using chemical controls only as a last resort, and only those chemicals that pose the least possible hazard to people and the environment.

Comment: Monitoring, and the other elements listed, are keystones of IPM and should be an integral part of pest management procedures.

Decision-Making Process

IPM Committee

The District shall establish an IPM Committee to provide guidance, education and advice regarding implementation of the IPM policy. The committee will review and approve the IPM Coordinator’s plan and recommendations to the School Board regarding all pest management practices. The Superintendent will appoint members of the committee which will be comprised of at least the following: Superintendent or designee, one member of the Board of Trustees, the IPM Coordinator, a parent of District-enrolled student(s) and one community member at large.

Comment: This committee can be very useful in making suggestions, doing research, and bringing in new information, but it need not have authority to make policy. It is helpful if the committee also has an independent pest management expert (preferably one trained in IPM). Having a teacher and/or principal from the district can also be helpful.

IPM Coordinator

The Superintendent shall designate a staff person to coordinate the IPM program. The IPM coordinator shall be educated in the principles and practice of least-hazardous IPM and be responsible for:

- Oversight for the successful implementation of the program consistent with this policy and coordinate all District efforts to adopt IPM.
- Overall program management and providing proposed regulations or procedures and products for use in managing pest populations.
- Formal annual notification to parents, staff and students of any chemical pesticide application not exempt from requirements of the Healthy Schools Act.
- Posting warning signs for pesticide applications.
- Establishing and maintaining a registry of parents, staff and students who have indicated that they desire prior notification of each pesticide application.
- Recordkeeping guidelines for any chemical pesticide application.
- Education and training for IPM personnel.
- *Optional: A list of approved procedures and products.*

Comment: The Healthy Schools Act requires school districts to designate a person to carry out the provisions of the law. If the district chooses to adopt IPM, this person may be called the IPM Coordinator. An IPM program will work more smoothly if someone has the job of coordinating its various elements. See also section 2.6 of this guidebook for more information on selecting and training an IPM Coordinator.

Training

Training of personnel is critical to the success of an IPM program. Staff, students, pest managers and the public shall be educated about potential school pest problems, the IPM Policy, and procedures that will be used to achieve the desired pest management objectives. Within five months of district adoption of this policy, the IPM Committee will agree on a plan to educate and train these constituencies.

Comment: Training must be included in an IPM program so that staff and students understand the changes that will be taking place, and so that personnel that must deal directly with pest management can easily secure information, tools, and techniques that will help them make the transition to IPM.

Contractors

All pest control companies contracted by the District shall follow all provisions of the policy. Licensed and certified pest control operators are required to include information on any school pesticide application that they perform as part of their otherwise applicable reporting requirements.

Comment: This paragraph states that contractors will use pest management practices consistent with IPM methods, and their pesticide use reporting will conform with the Healthy School Act requirements.

Notification, Recordkeeping and Reporting

Annual notification

The District shall annually provide to all staff, parents or guardians of pupils, enrolled at a school site, a written notification of all pesticide products to be used during the upcoming year. The notice shall identify the ingredients in each pesticide. The notice shall also contain the Internet address used to access information on pesticides and pesticide use reduction developed by the Department of Pesticide Regulation pursuant to Section 13184 of the Food and Agriculture Code.

Individual notification of pesticide application

The annual written notification shall provide the opportunity for recipients to receive notification of individual pesticide application at the school facility. The designee shall notify persons who register for such notification of individual pesticide applications at least 72 hours prior to the application. The notice shall include the product name, the active ingredients and the intended date of application.

Posting pesticide applications

The District designee shall post warning signs at each area to be treated. The sign shall include the term "Warning/Pesticide Treated Area," the product name, manufacturers name, the EPA product registration number, date of application, area of application and the target pest. These signs shall be posted 24 hours prior to the application and remain for 72 hours after the application.

Posting approved & banned product lists {optional, see next page}

Application records

Each school site shall maintain records of pesticide use for a period of 4 years. This requirement can be met by retaining a copy of the posting sign for individual applications. These records shall be made available to the public upon request, pursuant to the California Public Records Act. (Legal Reference: Education Code, section 17611)

Emergency pesticide applications

Pest control measures taken during an emergency, i.e., wherein the school district designee deems that the immediate use of a pesticide is necessary to protect the health and safety of pupils, staff or other persons, or the school site, shall not be subject to the notification requirements herein. However, the District designee shall make every effort to provide the required notification for an application of a pesticide under emergency conditions.

Exemptions from Notification, Recordkeeping and Reporting

Some pesticide products are exempt from notification, recordkeeping and reporting requirements. Pesticide products used as a self-contained bait or trap, gel or paste deployed as a crack and crevice treatment, any pesticide exempted under FIFRA (7 U.S.C. Sec. 25 (b)), or antimicrobial pesticides, including sanitizers and disinfectants, are exempt.

Comment: This section outlines requirements of the Healthy Schools Act that all schools must implement. Notification, posting and recordkeeping addresses the public's right-to-know. In addition, written records serve as the memory of an IPM program; thus, documenting all pest management action is very important.

Optional: Product Selection and Use Approval

Some districts have also included in their policy an additional section on Product Selection and Use Approval. Examples of these sections can be found in the Oakland Unified and Kentfield school district policies that follow.

Kentfield School District

Least-Toxic Integrated Pest Management Policy

The Kentfield School District (“District”) recognizes that maintenance of a safe, clean and healthful environment for students and staff is essential to learning. It is the goal of the District to provide for the safest and lowest risk approach to control pest problems while protecting students, staff, the environment, and District property.

The District adopts a Least-Toxic Integrated Pest Management (IPM) Policy. Pests and weeds will be controlled: to protect the health and safety of students and staff; to maintain a productive learning environment; and, to maintain the integrity of school buildings and grounds. It is the policy of the District to focus on long-term pest prevention and give non-chemical methods first consideration when selecting appropriate control techniques. The full range of alternatives will be considered, giving preference to no use of chemicals and then chemicals that pose the least possible hazard to people and the environment.

A Least-Toxic Integrated Pest Management (IPM) policy contains the following elements:

1. Monitoring to determine pest population levels and identify decisions and practices that could affect pest populations.
2. Setting of injury and action levels to determine when vegetation or a pest population at a specific site cause(s) unacceptable economic or medical damage wherein corrective action should be taken.
3. Modification of pest habitats to deter pest populations and minimize pest infestations.
4. Consideration of a range of potential treatments for the pest problem, including physical, horticultural, and biological methods of pest control, using synthetic chemical controls only as a last resort and only those chemicals that pose the least possible hazard to people and the environment. Without prior approval by the Board, in an emergency, the District will not use any Toxicity Category I or Toxicity Category II Pesticide product, any pesticide product containing an ingredient known to the State of California to cause cancer, developmental toxicity, or reproductive toxicity, pursuant to the California Safe Drinking Water and Toxic Enforcement Act of 1986, or any pesticide product containing an ingredient classified by the United States Environmental Protection Agency as a known, possible or probable human carcinogen, reproductive toxin, developmental toxin or known possible or probable endocrine disrupter.

The Superintendent shall designate a staff person to coordinate the IPM program. The IPM coordinator shall be educated in the principles and practice of least toxic IPM and be responsible for:

1. Recommending a plan to the Board in July for the following school year. Included in this plan will be:

- Overall turf management and facilities plan listing all proposed products and methods proposed for use
 - Procedures for formal notification to parents, staff and students of any chemical pesticide application which will include pre-and-post signage and written notice
 - Recordkeeping guidelines for any chemical pesticide application
 - Education and training for IPM personnel
 - List of products on an Approved List, Limited Use and Use Banned and a process to make exceptions in case of emergency to use a product not on the Approved List.
2. Overseeing implementation of the program consistent with this policy and coordinating all District efforts to adopt IPM.
 3. Tracking all pesticide use and ensuring that records of pesticide use are made available to the public.
 4. Presenting an annual report in June to the School Board evaluating the progress of the IPM program.

Larkspur School District Policy Of The Board Of Trustees

Business BP 3514

PESTICIDE MANAGEMENT PRACTICES— Policy

Policy Statement

Pest Management

Integrated Pest Management Policy

The IPM Coordinator and Annual IPM Plan

IPM Committee

Notification

Legal References

Policy Statement

The Governing Board believes that students and employees have the right to learn and work in a safe, clean and healthy environment. The District has an obligation to locate and reduce or eliminate potential risks to health and the environment, to use environmental resources in a responsible way, and to educate students and staff about environmental issues. It is the goal of the District to provide for the safest and lowest-risk approach that is effective and economically feasible and protects students, staff, the environment and District property.

The Precautionary Principle, which is the long-term objective of the District's Least Toxic Integrated Pest Management policy, states that when an activity raises threats of harm to the environment or human health, precautionary measures will be considered. The District's objective in adopting this policy is to institutionalize the ongoing practice of , whenever possible, not using pesticides at District operated school sites and implementing a Least Toxic Integrated Pest Management approach.

Pest Management

District buildings and grounds shall be regularly cleaned and repaired in order to prevent infestations, minimize the use of pesticides, and eliminate routine spraying.

The District adopts a Least Toxic Integrated Pest Management (IPM) Policy. Pests and weeds will be controlled to protect the health and safety of students and staff, to maintain a productive learning environment and to maintain the integrity of school buildings and grounds. It is the policy of the Board to focus on long-term pest prevention and give non-chemical methods first consideration when selecting appropriate control techniques. The full range of alternatives, including no action, will be considered first, with chemical controls used only as a last resort, giving preference to chemicals that pose the least possible hazard to people and the environment.

Integrated Pest Management Policy

The elements of the Least Toxic Integrated Pest Management (IPM) Policy are as follows:

- Monitoring to determine pest population levels and identify decisions and practices that could affect pest populations.
- Setting of action levels to determine when vegetation or a pest population at a specific site cause(s) unacceptable economic or medical damage wherein corrective action should be taken.
- Modifying and/or eliminating pest habitats to deter pest populations and minimize pest infestations.
- Considering use of a range of potential treatments for the pest problem, including physical, horticultural, and biological methods of pest control.
- Using chemical controls only as a last resort, and only those chemicals that pose the least possible hazard to people and the environment. The District will not use any Toxicity Category I or Toxicity Category II pesticide product, any pesticide product containing an ingredient known to the state of California to cause cancer, developmental toxicity or reproductive toxicity pursuant to the California Safe Drinking Water and Toxic Enforcement Act of 1986 or any pesticide product containing an ingredient classified by the United States Environmental Protection Agency as a known, possible or probable human carcinogen, reproductive toxin, developmental toxin or endocrine disruptor, except when used in conjunction with an enclosed bait or trap on the Limited Use Products List. Prior authorization must be obtained from the Board of Trustees before any application of pesticides not on the Approved Product List (see AR, pg. 2) to District property. Board authorization will be based on the Superintendent's recommendations incorporating the IPM Committee's advice and review of proposed products. The Superintendent or designee may grant an emergency exemption and authorize application of pesticides pursuant to the guidelines contained in AR 3514 when IPM Committee review is not practicable.

The IPM Coordinator and Annual IPM Plan

The Superintendent shall designate a staff person to coordinate the IPM program. The IPM Coordinator shall be educated in the principles and practices of least toxic IPM and shall be responsible for providing a status report and recommended plan in April of each year to the IPM Committee. The IPM Coordinator shall provide the report and plan, incorporating the IPM Committee's findings, to the Superintendent for submission to the Board. Included in this plan will be administrative regulations for:

- An overall IPM plan listing all proposed products and methods proposed for use.
- Procedures for formal notification to parents, staff and students of any chemical pesticide application, which will include pre- and post-application signage, written notice and a notification registry.
- Record keeping guidelines for any chemical pesticide application and ensuring that records of pesticide use are made available to the public.

- Education and training for District personnel.
- Emergency exemption process.
- Record keeping guidelines for pest monitoring and for non-chemical methods used for pest control.

IPM Committee

The District shall establish an IPM Committee to provide guidance, education and advice regarding IPM policy procedures and practices. The Committee will meet at least annually to review and make recommendations to the Superintendent for submission to the Board regarding all pest management practices. The Committee shall be appointed by the Superintendent and will be comprised of at least the following representatives: Superintendent or designee, the District IPM Coordinator, one IPM professional, one parent of enrolled student(s), and one community and/or environmental organization representative.

Notification

All staff and parents or guardians of students will receive annual written notification addressing, among other things, expected use of pesticide products not on the Approved Use Products List as set forth in the IPM Coordinator's annual turf management and facilities plan.

The District shall provide the opportunity for students, parents, staff and community members to register with the District if they wish to receive notification of planned pesticide applications at a school site. People who register for such notification shall be notified of individual pesticide applications at least 72 hours prior to application. The notice shall include the product name, the active ingredient or ingredients in the product, the intended date of application, target pest and contact with telephone number for more information. The written notice requirement is suspended in emergency situations requiring immediate action of the Superintendent or IPM Coordinator. Warning signs will be posted at the pesticide application site at least 72 hours before the application and remain posted for 72 hours after the application.

These procedures shall be regularly reviewed and updated in order to reflect changed circumstances and to assess progress in achieving District objectives. The Board encourages staff to exchange information with other districts and the County Office of Education about programs, options, and strategies for implementing this policy.

Products on the Approved Use Products List are exempt from the above-stated notification requirements.

Legal References

Education Code: EC 17609 Chapter 5, Part 10.5, Article 4 commencing with Section 17608

Food and Agricultural Code: Article 17 of Chapter 2 of Division 7

Health Safety Code: Chapter 76 Division 103

Board Adopted: August 23, 2001

New Haven Unified School District

Board Policy #B-3613

Pesticide Management Practices

Assembly Bill 2260 (Shelley) Stats 2000, Ch. 718, effective January 1, 2001 establishes the Healthy Schools Act of 2000.

The Governing Board of the New Haven Unified School District intends to implement policies and procedures consistent with AB2260. These policies and procedures shall include strategies and methods to:

1. Use the effective, least toxic method of pest control.
2. Maintain pesticide use records at each site for a period of not less than 4 years.
3. Annually provide a list to each school district site of pesticides expected to be used during the forthcoming school year to staff, parents or guardians.
4. Prior to any pesticide application, post warning signs at a the school site.
5. Perform emergency applications.
6. Require that licensed and certified pest control operators include information on any school pesticide application that they perform as part of their otherwise applicable reporting requirements.

These procedures shall be regularly reviewed and updated to achieve the District objectives.

Definitions:

For the purpose of this policy, school site shall mean: any facility used for public daycare, kindergarten, elementary and secondary school purposes. The term includes the buildings, structures, playgrounds, athletic fields, school vehicles, or any other school property visited or used by pupils. Pesticide shall be defined as any economic poison.

Least Toxic Method:

The District designee shall develop an Integrated Pest Management (IPM) program and periodically review the program to ensure that the least toxic, economically feasible methods are used for pest control. This program shall incorporate both chemical and non-chemical procedures.

Notification:

1. The District shall annually provide to all staff, parents or guardians of pupils, enrolled at a school site, a written notification of all pesticide products to be used during the upcoming year. The notice shall identify the ingredients in each pesticide. The notice shall also contain the internet address used to access information on pesticides and pesticide use reduction developed by the Department of Pesticide Regulation pursuant to Section 13184 of the Food and Agriculture Code.

2. The written notification shall provide the opportunity for recipients to receive notification of individual pesticide application at the school facility. The designee shall notify persons who register for such notification of individual pesticide applications at least 72 hours prior to the application. The notice shall include the product name, the active ingredients and the intended date of application.
3. If a pesticide product, not included in the annual notification, is subsequently intended for use at a school site, the District designee shall, at least 72 hours prior to the application, provide written notification of its use.

Notification pursuant to this policy shall be by the least costly manner pursuant to Education Code Section 48980.3, and shall to the extent feasible be included as part of any other written communication provided to individual parents or guardians.

Records Maintenance:

Each school site shall maintain records of pesticide use for a period of 4 years. This requirement can be met by retaining a copy of the posting sign for individual applications. These records shall be made available to the public upon request, pursuant to the California Public Records Act. (Legal Reference: Education Code, Section 17611)

Posting Requirements:

The District designee shall post warning signs at each area to be treated. The sign shall include the term “Warning/Pesticide Treated Area”, the product name, manufacturer's name, the EPA product registration number, date of application, area of application and the target pest. These signs shall be posted 24 hours prior to the application and remain for 72 hours after the application.

Emergency Pesticide Applications:

Pest control measures taken during an emergency, i.e., wherein the school district designee deems that the immediate use of a pesticide is necessary to protect the health and safety of pupils, staff or other persons, or the school site, shall not be subject to the notification requirements herein.

However, the District designee shall make every effort to provide the required notification for an application of a pesticide under emergency conditions.

Legal Reference:

California Education Code 17612. Notification of pesticide use 48980.3 Required notification of rights (Chapter 5 Part 10.5, Article 4 of the Education Code commencing with Section 17608; Article 17 of Chapter 2 of Division 7 of the Food and Agricultural Code; Chapter 76 Division 103 of the Health and Safety Code)

Revised

First Reading
July 17, 2001

Second Reading
August 21, 2001

Novato Unified School District Board Policy

Series 3000 Bp 3514.3

Business Services

Integrated Pest Management Policy

The Novato Unified School District recognizes that maintenance of a safe, clean and healthful environment for students and staff is essential to learning. It is the goal of the District to provide the safest and lowest risk approach to control pest problems while protecting students, staff, the environment and District properties and assets.

The District adopts a Least-Toxic Integrated Pest Management (IPM) Policy. Pest will be controlled: to protect the health and safety of the students and staff; to maintain a productive learning environment; and, to maintain the integrity of the school buildings and grounds. It is the policy of the District to focus and develop long-term pest prevention methods and give “non-chemical” methods first consideration when selecting appropriate control measures. The full range of alternatives will be considered, giving preference to non-chemical methods, and then chemicals that pose the least hazard to people and the environment.

A Least-Toxic Integrated Pest Management (IPM) Policy contains the following elements:

1. Monitoring to determine pest population levels and identify decisions and practices that could effect pest populations.
2. Setting of injury and action levels to determine when vegetation or a pest population at a specific site cause(s) unacceptable economic or medical damage wherein corrective action should be
3. Modification of pest habitats to deter pest populations and minimize pest infestation.
4. Consideration of a range of potential treatments for the pest problem, including prevention, mechanical, cultural, and biological methods of pest control, using synthetic chemical controls only as a last resort and only those chemicals that pose the least possible hazard to people and the environment.
5. Establish a committee to provide guidance, education and support regarding IPM procedures. Members of the committee will be appointed by the Superintendent and may include the following: Superintendent or designee, Board Member, IPM Coordinator, parent, certificated staff member, classified staff member and one community member at large.
6. Abstain from using any pesticide product containing an ingredient known to the State of California to cause cancer, developmental toxicity, or reproductive toxicity, pursuant to the

California Safe Drinking Water and Toxic Enforcement Act of 1986, or any pesticide product containing an ingredient classified by the United States Environmental Protection Agency as a known human carcinogen, reproductive toxin, developmental toxin or endocrine disrupter.

The Superintendent shall designate a staff person to coordinate the IPM program. The IPM coordinator shall be educated in the principles and practice of least toxic IPM and be responsible to provide:

- Oversight for the successful implementation of the program consistent with this policy and coordinate all District efforts to adopt IPM.
- Overall program management and provide proposed procedures and products for use in managing pest populations.
- Formal notification to parents, staff and students of any chemical pesticide application including pre-and-post signage.
- Establish and maintain a registry of parents, staff and students that have indicated they desire notification 72 hours prior to pesticide applications.
- Record-keeping guidelines for any chemical pesticide application.
- Education and training for IPM personnel.
- A list of approved procedures and products.

Legal References:

EDUCATION CODE

17608 - 17613 Healthy Schools Act of 2000

48980.3 Healthy Schools Act of 2000

FOOD AND AGRICULTURAL CODE

13180 Healthy Schools Act of 2000

San Diego Unified School District IPM Policy

(This policy was adopted on October 22, 1991, by the San Diego Unified School District.)

Structural and landscape pests can pose a significant problem to people and the environment. Hazardous pest control chemicals can also pose a significant problem to people and the environment. It is therefore the policy of the San Diego Unified School district to incorporate Integrated Pest Management (IPM) procedures for the control of structural and landscape pests. IPM means that pest problems will be alleviated with the least possible hazard to people, property, and the environment by using IPM methods that are safe, effective and economically feasible. Pesticides will be carefully evaluated before use and will only be used after non-hazardous and other safer methods have been considered.

Integrated Pest Management will include the following components:

1. Educate staff, students and the public about school pest problems and the Integrated Pest Management policies.
2. Develop plant inventory and pest problem survey procedures.
3. Identify pests that are considered public health problems and methods to prevent them in the least hazardous way from becoming a health problem.
4. Identify and evaluate cultural/environmental conditions on the grounds that encourage pest problems. Make recommendations for remedial action.
5. Monitor population levels of pests to determine treatment procedures.
6. Review all available options for acceptability and/or feasibility before the use of a chemical pesticide; cost of staffing considerations alone will not be the sole justification for use of chemical control agents. Records of IPM strategies considered prior to chemical treatment will be maintained.
7. Ensure that pesticide applicators whether in-house or contracted are educated and trained in the use of current pesticides approved for use by the SDUSD and that they follow label precautions and application regulations. Contracted companies are to be in compliance with the San Diego Unified School District's Integrated Pest Management policy.
8. Establish and maintain pesticide use reporting and recordkeeping procedures.
9. Establish system to evaluate and measure control success.
10. Make information accessible to the public and employees regarding pesticides used and area treated.
11. Eliminate fire potential (e.g. tall, dry grass, dead trees) in the safest and most timely manner using available resources.

IPM-Related Curricula and Resources for the Classroom

BugPlay

For grades K through 3. Hands-on experiences with harmless insects help students develop an appreciation for these amazing creatures. Lessons, with accompanying music cassette, include the use of poems, songs, and drawings. Available from: Addison Wesley Publishing Co., (800) 552-2259

Learning about Pesticides at School:

Project Ideas for High School or Middle School Classrooms or Student Environmental Clubs. September, 199; 22 pp. plus 8 page glossary

Teaching/learning activities designed for middle school and high school level students. It includes a variety of activities that can be combined into one comprehensive school pesticide use reduction project. This is an ideal project for interdisciplinary classes or environmental clubs. The project also involves activities appropriate in traditional health, chemistry, biology, ecology, math, speech, and social studies classrooms. Better yet, it involves students in a “real-world” project that will make a difference in their own lives.

Available from: Northwest Coalition for Alternatives to Pesticides (NCAP), P.O. Box 1393, Eugene, OR 97440 or call (541) 344-5044.

Legacy of a Pest

A science, technology, and social studies curriculum guide for understanding and dealing with pest problems. There are over 50 teacher-tested activities dealing with the gypsy moth problem, its life cycle, IPM control strategies, chemical control strategies, and more. 243 pp.

Available from: Legacy of a Pest, 607 E. Peabody Dr., Champaign, IL 61820 or call (217) 333-6880.

Living With Insects in the Big City: Urban Insect Ecology and Safe Pest Management

A curriculum for grades K-3. It contains hands-on activities, teaches science framework concepts and applies biological concepts to our urban world. Also included are graphic aids.

Available from: Citizens for a Better Environment (CBE), 500 Howard St., Ste. 506, San Francisco, CA 94105 or call (415) 243-8373.

Teaching Ideas: Pesticide Awareness and the Concept of Integrated Pest Management

Curriculum is suitable for use in middle, junior, or senior high school biology, ecology, or social studies courses. Included is “How to Map Pesticide Use in your School (and Community),” and four lesson plans on pesticides and Integrated Pest Management concepts.

Available from: Northwest Coalition for Alternatives to Pesticides (NCAP), P.O. Box 1393, Eugene, OR 97440 or call (541) 344-5044.

The Growing Classroom

For grades 2 through 6. Students use indoor and outdoor gardens for the study of science and nutrition through experimentation, investigation, and data collection and analysis.

Available from: Addison Wesley Publishing Co. at (800) 552-2259.

The Young Entomologists’ Society (Y.E.S.)

An international society of young and amateur insect enthusiasts. It operates on a membership basis and publishes several newsletters, sells books, educational toys, and clothing. This organization encourages active involvement of its young members and communication with each other, primarily through the mail. A catalog of their publications is available.

For more information, write to Y.E.S. Inc., 1915 Peggy Place, Lansing, MI 48910-2553 or call (517) 887-0499.

Pesticide Information Resources

Product manufacturers can provide information on hazards, efficacy, and safe disposal of pesticides. They are required to provide the public with a sample label and an MSDS (material safety data sheet) on request.

The Department of Pesticide Regulation (DPR) is responsible for regulating pesticides in California. This includes product evaluation and registration, environmental monitoring, residue testing of fresh produce, and local use enforcement through the county agricultural commissioners. DPR's home page is <http://www.cdpr.ca.gov/>.

DPR's School IPM Web site contains school-specific information regarding pest management, pesticide safety and environmental and health impacts of pesticide use. It can be found at <http://www.schoolipm.info/>

DPR Pesticide Databases—Look up pesticide products by active ingredient, product name, and other criteria, and then select “full report” for a brief summary of toxicity information. The databases contain only California-registered products. Follow the “Product and Use Data” link at <http://www.cdpr.ca.gov/>

For more information, call (916) 324-4100, visit <http://www.cdpr.ca.gov/> or write to DPR at 1001 I Street, P.O. Box 4015, Sacramento, CA 95812-4015.

Cooperative Extension personnel (look in the government section of the phone book under Cooperative Extension or visit <http://ucanr.org/cc.cfm>) can provide information on the hazards and efficacy of pesticides. They can provide up-to-date information about pesticides registered for a particular pest. The Cooperative Extension office also provides services for insect identification.

Each county in California has a County Office of Agriculture that is available to give assistance. Check the government section of the phone book for the closest office.

The National Pesticide Information Center (NPIC) operates a toll-free hotline, staffed by toxicologists, to provide the general public as well as the medical, veterinary, and other professional communities with information on pesticide poisonings, correct use of pesticides, referrals for laboratory analyses and investigation of pesticide incidents, emergency treatment information and pesticide clean-up and disposal procedures

For more information, call NPIC at (800) 858-7378 (hotline), visit <http://npic.orst.edu/> or write to NPIC, Oregon State University, 333 Weniger, Corvallis, OR 97331-6502

US EPA Office of Pesticide Programs—This site includes consumer alerts, health and environmental effects of pesticides, pesticide fact sheets, educational materials and information on pesticide registrations.

For more information, visit <http://www.epa.gov/pesticides/> or write to US Environmental Protection Agency, Office of Pesticide Programs, Ariel Rios Building, 1200 Pennsylvania Ave. NW, Washington, D.C. 20460

Compendium of Pesticide Common Names—Find active ingredients associated with pesticide common names. This electronic compendium is intended to provide details of the status of all pesticide common names, together with their systematic chemical names, molecular formulae and Chemical Abstracts Registry Numbers.

<http://www.hclrss.demon.co.uk/>

An Introduction to Insecticides—A summary of common insecticides, written by Professor Emeritus George Ware of University of Arizona. It is somewhat technical.

<http://ipmworld.umn.edu/chapters/ware.htm>

See also Ware, G.W. (2000). The Pesticide Book, 5th Ed. Thomson Publications, Fresno, California. 415 pp.

EXTOXNET—Look up many (not all) pesticide active ingredients, and check toxicology information. “Pesticide Information Profiles” can be searched or browsed. This Web site is produced by a consortium of universities.

<http://www.ace.orst.edu/info/extoxnet/ghindex.html>

Joint UNEP, WHO GEENET Chemicals Site—This site contains sources of information on pesticides and other chemicals from the United Nations Environmental Program, World Health Organization, and other international bodies.

<http://irptc.unep.ch/> or write to: UNEP Chemicals 11-13, chemin des AnÈmones, 1219 Ch,telaine, Geneva, Switzerland.

IPM for Schools Recommended Reading

School IPM Manuals

Daar, S., Drlik, T., Olkowski, H., and Olkowski, W. 1997. IPM for Schools: a How-To Manual. Bio-Integral Resource Center, Berkeley, CA. 215 pp.

The California School IPM Guidebook was based in part on this publication. It was published in association with U.S. EPA region IX and can be found online at <http://www.epa.gov/region09/toxic/pest/school/index.html>

Martz, E., Ed. 2001. IPM for Pennsylvania Schools: a How-To Manual. Pennsylvania Integrated Pest Management Program 112 pp.

This manual was based in part on the IPM for Schools: A How-to Manual, published by U.S. EPA region IX in association with the Bio-Integral Resource Center. It can be accessed at <http://paipm.cas.psu.edu/schoolmn/contents.htm>.

Regents of the University of Wisconsin System. 2000. Wisconsin's School Integrated Pest Management Manual.

This online School IPM Manual be viewed at <http://ipcm.wisc.edu/programs/school/table.htm>

Stauffer, S., Ferrentino, R., Koplanka-Loehr, C., and Sharpe, K. 1998. IPM Workbook for New York State Schools. Cornell Cooperative Extension. IPM Publication Number 605. 155pp.

This is an excellent, easy-to-read school IPM manual. It can be found online at <http://www.nysipm.cornell.edu/publications/> under "The School IPM Workbook" link.

General IPM

Dreistadt, S.H., J.K. Clark, and M.L. Flint. 1994. Pests of Landscape Trees and Shrubs: an integrated pest management guide. University of California Statewide Integrated Pest Management Project, Division of Agriculture and Natural Resources (Publication 3359), Davis, CA. 327 pp.

Excellent guide for managing problems on a wide variety of plants; each pest is illustrated with a color plate.

Ebeling, W. 1975. Urban Entomology. University of California, Division of Agricultural Sciences, Los Angeles. 695 pp.

A classic text on the biology and management of urban pests, including rats and mice. Excellent drawings and photographs and a readable text make it outstanding. Dr. Ebeling is the U.S. expert on the use of silica gel, boric acid, and other least-toxic pesticides for insect control in urban and suburban environments. Only available online at <http://entmuseum9.ucr.edu/ent133/ebeling/ebeling.html>

Flint M.L. 1998. Pests of the Garden and Small Farm: a grower's guide to using less pesticide, 2nd Edition. University of California Statewide Integrated Pest Management Project, Division of Agriculture and Natural Resources (Publication 3332), Davis, CA. 286 pp.

Summarizes IPM approaches to more than a hundred pest insects, weeds, and plant diseases found in the U.S. and Canada. Beautifully illustrated with color plates.

Hygnstrom, S.E., R.M. Timm, and G.E. Larson, eds. 1995. Prevention and Control of Wildlife Damage. University of Nebraska, Institute of Agriculture and Natural Resources, Lincoln. 250 pp.

This loose-leaf book is the most comprehensive source of information available on managing wildlife pest problems. The groups covered include rodents, bats, deer, birds, reptiles, and others.

Leslie, A.R. 1994. Handbook of Integrated Pest Management for Turf and Ornamentals. Lewis Publishers, Boca Raton, FL. 660 pp.

The EPA assisted in the development of this book with the stated purpose of reducing pesticide pollu-

tion. It is intended for professionals who deal with urban landscaping and turf management of all kinds.

Madison, J.H. 1971. Practical Turfgrass Management. PWS Publishers, Boston. 466 pp.

This is the best lawn management text yet written.

Mallis, A. 1997. Handbook of Pest Control 8th ed. CIE Publications, Cleveland, OH. 1,400 pp.

A classic work on urban pests. Excellent reference book.

Marer, P.J. 2000. The Safe and Effective Use of Pesticides, 2nd Ed. University of California State-wide Integrated Pest Management Project, Division of Agriculture and Natural Resources (Publication 3324), Davis. 352 pp.

This book provides updated and detailed information for selecting, using, handling, storing, and disposing of pesticides. It is the study guide for all categories of DPR's Qualified Pesticide Applicator License and Qualified Pesticide Applicator Certificate exams.

Moore, H.B. 1995. An Introduction to Wood Destroying Insects: their identification, biology, prevention and control. Pest Control Magazine, Cleveland, OH. 120 pp.

Good descriptions of and control information for termites, wood-boring beetles, wood wasps, carpenter bees, and carpenter ants.

Olkowski, W., S. Daar, and H. Olkowski. 1991. Common-Sense Pest Control. - Least-toxic solutions for your home, garden, pets and community. Taunton Press, Newtown, CT. 715 pp.

An excellent, comprehensive resource book on IPM. Illustrated with photos, drawings, tables, and charts.

Schultz, W 1989. The Chemical-Free Lawn. Rodale Press, Emmaus, PA. 194 pp.

An excellent primer on lawn care without the use of synthetic chemical products.

Ware, G.W 1999. The Pesticide Book. 5th ed. Thomson Publications, Fresno, CA. 418 pp.

This valuable reference is arranged by type of pesticide: insecticide, rodenticide, avicide, herbicide, etc. It includes discussions on modes of action, pesticide resistance, toxicity and hazards, and safe handling and storage.

Sample IPM Contracts

Sample IPM Contract Language for Landscape Contracts and Structural Contracts

The following sections include sample language and components of a contract specific to an IPM service contract. This model provides program descriptions and statements of work. This is not intended to be a ready-to-go contract since certain sections that may be required for use in individual districts is not included, such as General Terms and Conditions, Disputes, etc. Contact the school district contracts manager for assistance.

Landscape IPM: Contract Components and Sample Language

adapted from the State of Maryland's School IPM Contract Manual

Background

The basis of the [Name School] school district IPM services is the use of IPM strategies that emphasize pest prevention and the safe and effective management of pest problems. This involves the regular monitoring for the presence of pests in the landscape, in turf and surrounding grounds of school buildings and, when necessary, implementation appropriate control measures. The goal of the IPM program is to provide effective, long-term pest control, while minimizing the use of pesticides. The Contractor must exhibit awareness and sensitivity to the fact that the school environment cannot be compromised through deliberate or inadvertent contamination by pesticides.

Scheduled, routine pesticide treatments in any area of the school are prohibited. Pesticides should be applied only when nonchemical methods have proven ineffective or are impractical, and only in areas of known infestation. It is essential to the success of the IPM program that the Contractor provides proactive services that identify landscape design deficiencies, plant maintenance practices, and plant choices that contribute to pest problems.

All IPM services and activities shall be planned and performed with the needs of the school children and staff as the foremost priority, working with school site staff to coordinate pest management activities to avoid disruption of school activities.

Description of Service

The Contractor shall furnish all labor and materials for the development and implementation of a comprehensive IPM program in designated schools and facilities. The Contractor shall demonstrate an understanding of the concept of IPM. The implementation of management practices in an IPM program is not based on the routine application of pesticides, but on monitoring and inspecting for pests, modifying landscapes and plant selection, and changing landscape and plant maintenance practices that can contribute to pest problems. Pest control is achieved in an IPM program by emphasizing pest prevention and making informed and accurate decisions as to when control measures are needed and the type of control measures to be used.

At a minimum, the IPM program shall consist of the development and implementation of routine pest management services; routine and special meetings among pest management personnel and school staff; routine and specially scheduled training; and written reports describing program status and recommendations for the corrective actions that need to be implemented by the school, the Contractor, or the school board.

IPM Coordinator and Liaison

To provide the degree of oversight and consistency of services necessary for a successful IPM program, the school districts shall designate an IPM Coordinator for the school district and an IPM liaison for each individual school. The IPM Coordinator is responsible for the notification, posting and recordkeeping requirements of the Healthy Schools Act {See section 1.4 of the guide-book for the requirements of the Healthy Schools Act}. These people should have the interest and capability to address all pest management issues, regardless of the pest involved or the area affected. The IPM Coordinator should participate in all decisions that may directly or indirectly affect pest management. A list of personnel designated as school liaisons should be provided to the Contractor by the school district. The Contractor's pest management technician should meet with the school liaison, upon initiation of the contract, and prior to performing pest management services. The Contractor and school liaison will:

1. Identify and discuss specific problem areas in the landscape and turf areas;
2. Facilitate access to all management areas on school property;
3. Identify and discuss landscape features or maintenance practices that might contribute to pest infestations;
4. Discuss effectiveness of previous control efforts; and
5. Notify pest management personnel of any new restrictions or special safety precautions.

Routine Services

Routine IPM Services shall include the control of all landscape and turf pests such as, but not limited to, defoliating insects, sucking insects and mites, wood-boring insects, leaf mining insects, gall-forming insects and mites, root-feeding insects, diseases of ornamental landscape plants and turf grass, weeds, and vertebrate pests including gophers, ground squirrels, voles, moles, birds, deer and other vertebrate pests. Preventive recommendations for control of these pests are included as Routine IPM Services.

Additional Services

The school district reserves the right to negotiate with the Contractor for the purchase of related pest control services not specifically covered, such as pruning, tree removal, and other plant maintenance practices, and to add or delete grounds or fields to or from the Contract.

Special Service Request and Emergency Services

Routine IPM services shall consist of performing all components of an IPM program, as described in the Contractor's Pest Management Plan and Service Schedule (see Pest Management Plan and Service Schedule below) for each school management area during the period of this contract.

Requests for corrective action, special services, or emergency service shall be placed with the IPM Coordinator. The Contractor shall respond to a request for emergency services on the day of the request. In addition, the Contractor shall respond to special service requests within one (1) working day after receipt of request. If the special service or emergency service request entails the application of pesticides, applications will take place in the minimum time allowable by law. All emergency and special services should be recorded in the school IPM logbook. In the event that such services cannot be completed within the required time frames, the Contractor shall immediately notify the IPM Coordinator and indicate an anticipated completion date. The Contractor shall describe, in the proposal, his/her capability to meet this requirement (e.g., radio-dispatched service, names of office personnel handling the account, availability of technical and on-site personnel assigned to this program).

Pest Management Plan and Service Schedule

The Contractor shall survey all management areas covered under this contract and develop a written Pest Management Plan. This plan shall provide detailed information on areas of pest infestation; landscape design, plant selection deficiencies, and plant maintenance practices that contribute to pest infestation; and recommendations for correcting those conditions.

This plan should include a detailed description of the monitoring program that will be used to identify pest infestations in landscape and turf areas. It may include the use of traps, visual inspections, degree-day accumulations and other environmental indicators, and staff interviews. Other appropriate IPM activities, including decision making, intervention tactics and strategies, and evaluation methodologies should be included. A school system-approved pesticide list with labels and Material Safety Data Sheets (MSDS), if available, should be included in the management plan. The Contractor also shall submit a written Service Schedule to the IPM Coordinator and other school personnel for approval. This schedule will be structured so that the entire school grounds, landscapes, and turf areas are surveyed routinely.

The frequency of service visits for each management unit should be specified. This document should be included with the IPM service records of each school and revised as necessary.

The Pest Management Plan and Service Schedule must be approved by the school district before implementation of the program. This specifically includes approval for any proposed pesticide usage. Any subsequent changes to the Plan and Schedule and/or additions to the approved pesticide list must be requested in writing and receive the concurrence of the school district.

Structural and Procedural Recommendations

Landscape maintenance practices that may contribute to structural pest infestations shall be reported, in writing, to the building liaison and the IPM Coordinator by the Contractor at the completion of each inspection.

Recordkeeping

The Contractor shall provide and maintain a complete and accurate pest management logbook. The logbook shall permit efficient evaluation and management of the program, accurate information retrieval, and adhere to recordkeeping required by California law. The logbook shall be kept in a designated location at the facility and a copy sent to the IPM Coordinator following each service visit. Clear and concise records shall reflect the common names of pests monitored at the school as well as turf and landscaping maintenance deficiencies, problem plants, nonpesticidal and pesticidal control measures applied, immediate and long-term recommendations regarding pest management, communications with students and staff, MSDS, and labels for all products that may be used at the facility. A section of the logbook shall be allocated for school personnel to report pest sightings and other information that shall be reviewed by that Contractor during regular service visits. The Contractor shall provide, in the proposal, an example of the logbook format with a detailed explanation of how it will be used, the structure of the book, and information that has to be recorded in the logbook.

Contractor Licensing

Each Contractor submitting a proposal for consideration by the school district shall have and maintain, during the life of the contract, a California Pesticide Business License issued by DPR or the Structural Pest Control Board.

A copy of the current valid license shall be submitted with the Contractor's proposal and no consideration will be given to proposals that lack evidence of licensing. Failure to maintain the Pesticide Business License with all necessary pest control categories shall be sufficient grounds for immediate termination of the contract. It shall be the Contractor's responsibility to immediately notify the IPM Coordinator of any change in status.

Personnel

The Contractor shall provide, under this contract, only qualified pest management personnel with adequate and verifiable experience in the conduct of IPM programs. All on-site personnel must understand current pest management practices and be able to make decisions and field diagnoses regarding the use of IPM practices and techniques. The proposal shall present a plan or method for assuring continuity of pest management personnel assigned to this contract, and knowledge and sensitivity to the needs of the schools. The Contractor should understand that quality assurance and daily pest management services are two activities that are separate and distinct from one another, and require sufficient time and manpower.

The Contractor shall designate a Program Technical Supervisor (PTS), who shall have primary responsibility for the conduct of this pest management contract, ensure that all required reports are submitted to the IPM Coordinator on time, and be available for routine and emergency consultation. The following minimum requirements regarding this individual's experience and training shall be provided in the proposal:

1. Resume, including current home address.
2. Current certification or licensure in California as a Pest Control Applicator. Certification as a Pest Control Advisor also is acceptable.

The PTS shall provide on-site supervision to assure safety, carry out coordination and continuity of program services, and fulfill special requests from the IPM Coordinator. The responsibilities of the on-site supervisor will be carried out by the PTS, not the pest management technician. A pest management technician shall provide on-site pest management services.

Manner and Time to Conduct Services

Routine services should be performed during the late afternoon hours, Monday through Friday, excluding holidays, except when school is not in session or as specifically approved by the IPM Coordinator. Pesticides shall not be applied while foods are being prepared, served, or put away, or when the school building is open for business.

The Contractor shall observe all safety precautions throughout the performance of this contract. Certain areas within some facilities may require special instructions for persons entering the area. Any restrictions associated with special areas will be explained to the Contractor and the IPM Coordinator by the school building liaison. These restrictions shall be adhered to and incorporated into the Contractor's Pest Management Plan and Service Schedule for the school building.

All contracted personnel shall wear an identification card in a clearly visible manner during the performance of their duties. Vehicles used by the Contractor or the contractor's personnel shall be identified. The Contractor must park in designated areas in close proximity to each school building. At a minimum, the Contractor shall provide his/her personnel with clean uniforms to be worn while performing their duties. Additional personal protective equipment required for the safe performance of work shall be determined and provided by the Contractor in compliance with California law.

Nonchemical Alternatives

Nonchemical pest management alternatives include biological, physical, cultural and mechanical methods. Nonchemical management of weeds may include the repair of cracks and crevices in sidewalks, playgrounds, and parking lots to reduce germinating seeds. Weeds in planted beds may be managed through the use of mulching or mechanical removal such as hoeing or hand picking. In some cases, biological control agents may be released to help control weeds. Nonchemical control of weeds in lawns and playing fields may include alterations of turfgrass variety, or changes

in mowing heights or in fertilization and irrigation regimes. Nonchemical management of insect and disease pests of landscape plants may include the removal of pest-prone plants and replacement with pest resistant varieties, the addition of plants to the landscape that encourage the activities of beneficial insects or discourage the activities of pests, the physical removal of pests by pruning or hand picking, the use of barriers to prevent colonization of plants, the use of various traps to capture pests or disrupt activities such as mating, the release of biological control agents, and the alteration of practices such as fertilization, irrigation, mulching, and pruning to discourage pest activity.

Pesticide Alternatives. Pesticide applications shall be made only to areas of known pest infestation or activity, and where nonchemical control measures, such as plant selection, habitat modification, physical, mechanical, and biological control were not successful or are not feasible.

Application of pesticides shall not occur until a full inspection has been completed. If chemicals are needed, least-hazardous pesticides and formulations, such as boric acid, silica gels, and diatomaceous earth should be considered whenever possible.

Pesticide applications that may impact the operations or occupants of a school building shall be permitted only during hours when the school building is closed and after all notification procedures have been met. See Part One in this guidebook for a summary of regulations pertaining to notification. A contingency plan for performing pesticide applications on school grounds should be part of the Pest Management Plan and Service Schedule. This should include a list of pests, pesticide products, formulations, application methods, timing of application, and other relevant information that may be needed in specific situations and landscape areas.

Thresholds for pests of landscape plants are generally lacking. However, several studies indicate that insect and mite pests cause noticeable aesthetic injury to plants when approximately 10 percent of the plant is affected. Treatments should be considered when 10 percent of a plant's foliage is removed or discolored, or if the pest has the potential to kill the plant, as is the case with some boring and scale insects. Controls should be initiated against weeds in sidewalks, play areas, parking areas, and driveways when they pose a threat to safe pedestrian traffic or create serious structural damage to these surfaces. Insect, disease, and weed pests of turfgrass in playing fields should be controlled when the associated loss of turfgrass poses a threat of injury to children engaged in sports activities. Insect, disease, and weed pests of school lawns should be controlled only when the damage caused by these pests is intolerable.

The Contractor shall minimize the use of and potential exposure to pesticides wherever possible.

For example:

1. Use nonchemical control methods and materials.
2. Use spot treatments of pesticides. Treat only heavily infested plants.
3. Integrate control methods (i.e., plant selection, timing of watering, mechanical weed control, etc.).

4. Use reduced-risk pesticide application techniques, such as soil injections, rather than foliar applications, when possible.
5. Routine preventive pesticidal spray treatments are prohibited. Cover or barrier treatment of grounds with a pesticide must be specifically requested by the Contractor and approved by the IPM Coordinator, prior to performing the treatment. Preventive pesticide treatments are acceptable only on a case-by-case basis. The Contractor must provide detailed plans; list the rationale for the treatment, and the methods of application if preventive treatment is warranted for a specific school building or landscape area. Preventive treatments are subject to review by the IPM Coordinator and can be eliminated at any time.

Reporting

The Contractor's Program Technical Supervisor shall, at a minimum, provide annual written reports to the school district and attend regular meetings with the IPM Coordinator, school administration, school liaisons, and other concerned individuals. These reports and meetings will address all pest management activities provided by the Contractor for each facility's grounds and evaluation of the IPM program's progress. These reports should identify landscape conditions or personnel practices that require correction by the school district in order to promote the program's overall effectiveness. In addition, the Contractor shall provide monthly service reports to the IPM Coordinator within 15 days following the end of each month. The service reports shall include, but not be limited to, the following:

1. Landscape and turf areas serviced.
2. Man-hours for each facility's grounds for Routine Services.
3. Location, man-hours, and work description of Special, Emergency, and Additional Services.
4. Results of monitoring and inspections, including accepted common names of pests, numbers of each pest, and the location on each facility's grounds.
5. Written evaluation of turf conditions, landscape problems, specific plant infestation, and immediate and long-term program goals for either resolving pest problems or improving the IPM program for each facility's grounds.
6. Identification and listing of pesticides used by common/generic name (no codes), concentration and quantity of finished spray used, and other pest management techniques used for each school building and management area.

Evaluation

Monthly service reports during the growing season and annual reports will be used by the IPM Coordinator and the Contractor to develop a tangible means for evaluating the overall IPM effort on the facility's grounds. The Contractor's Program Technical Supervisor shall meet as needed with the IPM Coordinator to discuss the status of the pest management program and review program

activities and reports, or resolve ongoing or special problems. If the school district hires an outside evaluator, the contractor may be required to meet with this person or provide information.

Training

The Contractor shall include, in the bid proposal, a detailed description of the in-service training programs provided to their personnel, including pertinent documentation and records. In addition, the Contractor should be able to provide training or develop a plan to use outside expertise to provide training on all aspects of IPM program design and implementation to a wide array of school-associated personnel, including school administrators, maintenance and housekeeping staff, the IPM Coordinator and school liaisons, and community members.

Notification

The Contractor shall provide the IPM Coordinator and school liaisons with a list of pesticides that may be used on school grounds before the school year begins. Product labels and Material Safety Data Sheets for all pesticides shall be provided to the IPM Coordinator and made available in the school IPM program logbook for review by school liaisons, parents, and other interested parties.

The Contractor shall notify the IPM Coordinator and school building liaisons in advance of all pesticide applications to ensure that all provisions of the State and school district's advance notification policies are met. Although each school district is ultimately responsible for student notification of pesticide use and for sending notification home with students, the Contractor will be responsible for satisfying all legal requirements for posting. The Contractor will notify the IPM Coordinator upon completion of pesticide applications made to school grounds.

Inspections

Throughout the duration of this contract, school facilities (or grounds) will be inspected periodically by school district personnel to determine the effectiveness of the IPM program and Contractor compliance with the contract. Inspection results will be documented in writing and submitted to the Contractor. The Contractor shall initiate actions promptly to correct all deficiencies found.

It shall be the Contractor's responsibility to furnish an adequate supply of materials necessary for school personnel to inspect the interior of all rodent bait stations. These materials may include Allen wrenches to loosen and retighten fasteners, keys to open locks, or replacement self-locking plastic ties. Implements to cut plastic ties are not included under this provision.

Purchase of Ancillary Services/Equipment

The Contractor may need to purchase additional equipment or provide additional services to ensure that the IPM program is fully implemented. The school district has the right to negotiate the purchase of ancillary equipment and services with the Contractor and adjust the contract accordingly.

Structural IPM: Contract Components and Sample Language

adapted from the State of Maryland's School IPM Contract Manual

Background

The basis of the [Name School] school district IPM services is the use of IPM strategies that emphasize pest prevention and the safe and effective management of pest problems. This involves the regular monitoring for the presence of pests inside and around the structures of school buildings and, when necessary, implementation of appropriate control measures. The goal of the IPM program is to provide effective, long-term pest control, while minimizing the use of pesticides. The Contractor must exhibit awareness and sensitivity to the fact that the school environment cannot be compromised through deliberate or inadvertent contamination by pesticides. Scheduled, routine pesticide treatments in and around any area of the school are prohibited. Pesticides should be applied only when nonchemical methods have proven ineffective or are impractical, and only in areas of known infestation.

It is essential to the success of the IPM program that the Contractor provides proactive services that identify housekeeping and structural design deficiencies that contribute to pest problems. All IPM services and activities shall be planned and performed with the needs of the schoolchildren and staff as the foremost priority, working with school site staff to coordinate pest management activities to avoid disruption of school activities.

Description of Service

The Contractor shall furnish all labor and materials for the development and implementation of a comprehensive IPM program in designated schools and facilities. The Contractor shall demonstrate an understanding of the concept of the IPM method of pest control. The implementation of management practices in an IPM program is not based on the routine application of pesticides, but on monitoring and inspecting for pests, modifying structures, improving sanitation, and changing personnel practices that can contribute to pest problems. Pest control is achieved in an IPM program by emphasizing pest prevention and making informed, accurate decisions as to when control measures are needed and the type of control measures to be used.

The Contractor also shall provide evidence, in the proposal, of an understanding of the principles and practices governing sanitation in food service areas, in addition to other areas of the school, and the impact of pests and pest management methods on the ongoing activities of a food service facility. At a minimum, the IPM program shall consist of the development and implementation of regularly scheduled pest management services; routine and special meetings among pest management personnel and school staff; routine and specially scheduled training; and written reports describing program status and recommendations for the corrective actions that need to be implemented by the school, the Contractor, or the school board.

IPM Coordinator and School Liaison

To provide the degree of oversight and consistency of services necessary for a successful IPM program, the school districts shall designate an IPM Contact Person (IPM Coordinator) for the

school district and an IPM liaison for each individual school. The IPM Coordinator is responsible for the notification, posting and recordkeeping requirements of the Healthy Schools Act {See section 1.4 of the guidebook for the requirements of the Healthy Schools Act}. These people should have the interest and capability to address all pest management issues, regardless of the pest involved or the area affected. The IPM Coordinator should participate in all decisions that may directly or indirectly affect pest management. A list of personnel designated as school liaisons should be provided to the Contractor by the school district. The Contractor's pest management technician should meet with the school liaison, upon initiation of the contract, and prior to performing pest management services. The Contractor and school liaison will:

1. Identify and discuss specific problem areas in the facility;
2. Facilitate access to all management areas on school property;
3. Identify and discuss building features or personnel practices that might contribute to pest infestations;
4. Discuss effectiveness of previous control efforts; and
5. Notify pest management personnel of any new restrictions or special safety precautions.

Routine Services

Routine IPM Services shall include the control of all pests in and around school buildings such as, but not limited to, cockroaches, ants, fleas, stinging insects and nests accessible from the ground or from windows, rats and mice, flies, fruit flies, silverfish, stored products pests; and incidental invaders, such as crickets, earwigs, midges, millipedes, centipedes, ground beetles, clover mites, birds, bats, and squirrels.

Preventive recommendations for control of these and other pests, including wood-destroying insects like termites, carpenter ants, and wood-boring beetles also are included as Routine IPM Services. Treatment for the wood-destroying insects mentioned above is considered an Additional Service (see the section on Additional, Special, and Emergency Services below).

Additional Services

The school district reserves the right to negotiate with the Contractor for the purchase of related pest control services not specifically covered, such as subterranean and structural control of termites and other wood-boring insects, bird control, and to add or delete buildings or parts of buildings to or from the contract.

Special Service Request and Emergency Services

Routine IPM services shall consist of performing all components of an IPM program, as described in the Contractor's Pest Management Plan and Service Schedule (see the section on Pest Management Plan and Service Schedule below) for each school management area during the period of this

contract. Requests for corrective action, special services, or emergency service shall be placed with the IPM Coordinator. The Contractor shall respond to a request for emergency services on the day of the request. In addition, the Contractor shall respond to special service requests within one (1) working day after receipt of request. If the special service or emergency service request entails the application of pesticides, applications will take place in the minimum time allowable by law. All emergency and special services should be recorded in the school IPM logbook. In the event that such services cannot be completed within the required time frames, the Contractor shall immediately notify the IPM Coordinator and indicate an anticipated completion date. The Contractor shall describe, in the proposal, his/her capability to meet this requirement (e.g., radio-dispatched service, names of office personnel handling the account, availability of technical and on-site personnel assigned to this program).

Pest Management Plan and Service Schedule

The Contractor shall survey all management areas covered under this contract and develop a written Pest Management Plan. This plan shall provide detailed information on areas of pest infestation; structural, housekeeping, maintenance, and design deficiencies that contribute to pest infestation; and recommendations for correcting those conditions. This plan should include a detailed description of the monitoring program that will be used to identify infested areas. It may include the use of traps, visual inspections, and staff interviews. Other appropriate IPM activities, including decision making, intervention tactics and strategies, and evaluation methodologies should be included.

A school system-approved pesticide list with labels and Material Safety Data Sheets should be included in the management plan. The Contractor also shall submit a written Service Schedule to the IPM Coordinator and other school personnel for approval. This schedule will be structured so that the entire school building, trash room, exterior, and support areas of the building are monitored routinely. The frequency of service visits for each management unit should be specified. This document should be included with the IPM service records of each school and revised as necessary.

The Pest Management Plan and Service Schedule must be approved by the school district before implementation of the program. This specifically includes approval for any proposed pesticide usage. Any subsequent changes to the Plan and Schedule and/or additions to the approved pesticide list must be requested in writing and receive the concurrence of the school district.

Structural and Procedural Recommendations

Structural deficiencies and poor housekeeping practices that may contribute to structural pest infestations shall be reported, in writing, to the building liaison and the IPM Coordinator by the Contractor at the completion of each inspection.

Recordkeeping

The Contractor shall provide and maintain a complete and accurate pest management logbook. The logbook shall permit efficient evaluation and management of the program, accurate informa-

tion retrieval, and adhere to recordkeeping required by law. Each facility shall have its own logbook that will be updated during each service by the pest management technician. The logbook shall be kept in a designated location at the facility and a copy sent to the IPM Coordinator following each service visit. Clear and concise records shall reflect the common names of pests monitored at the school, as well as structural, maintenance, and housekeeping deficiencies, nonpesticidal and pesti-
cidal control measures applied, immediate and long-term recommendations regarding pest man-
agement, communications with students and staff, Material Safety Data Sheets (MSDS), and labels for all products that may be applied at the facility. A section of the logbook shall be allocated for facility personnel to report pest sightings and other information that shall be reviewed by the Contractor during regular service visits. The Contractor shall provide, in the proposal, an example of the logbook format with a detailed explanation of how it will be used, the structure of the book, and information that has to be recorded in the logbook.

Contractor Licensing

Each Contractor submitting a proposal for consideration by the school district shall have and maintain, during the life of the contract, a California *Pesticide Business License*. A copy of the current valid license shall be submitted with the Contractor's proposal and no consideration will be given to proposals that lack evidence of licensing. Failure to maintain the *Pesticide Business License* shall be sufficient grounds for immediate termination of the contract. It shall be the Contractor's responsibility to immediately notify the IPM Coordinator of any change in status.

Personnel

The Contractor shall provide, under this contract, only qualified pest management personnel with adequate and verifiable experience with implementing IPM programs. All on-site personnel must understand current pest management practices and be able to make decisions and field diagnoses regarding the use of IPM practices and techniques. The proposal shall present a plan or method for assuring continuity of pest management personnel assigned to this contract, and knowledge and sensitivity to the needs of the schools. The Contractor should understand that quality assurance and daily pest management services are two activities that are separate and distinct from one another, and require sufficient time and manpower.

The Contractor shall designate a Program Technical Supervisor (PTS), who shall have primary responsibility for the conduct of this pest management contract, ensure that all required reports are submitted to the IPM Coordinator on time, and be available for routine and emergency consulta-
tion. The following minimum requirements regarding this individual's experience and training shall be provided in the proposal:

1. Resume, including current home address.
2. Current certification or license in California as a Pest Control Applicator or as an Agriculture Pest Control Advisor.

The PTS shall provide on-site supervision to assure safety, carry out coordination and continuity of program services, and fulfill special requests from the IPM Coordinator. The responsibilities of the on-site supervisor will be carried out by the PTS, not the pest management technician. A pest management technician shall provide on-site pest management services

Manner and Time to Conduct Services

Routine services should be performed during the late afternoon hours, Monday through Friday, excluding holidays, except when school is not in session or as specifically approved by the IPM Coordinator. Pesticides shall not be applied while foods are being prepared, served, or put away, or when the school building is open for business. The Contractor shall observe all safety precautions throughout the performance of this contract. Certain areas within some facilities may require special instructions for persons entering the area. Any restrictions associated with special areas will be explained to the Contractor and the IPM Coordinator by the school building liaison. These restrictions shall be adhered to and incorporated into the Contractor's Pest Management Plan and Service Schedule for the school building. All contracted personnel shall wear an identification card in a clearly visible manner during the performance of their duties. Vehicles used by the Contractor or the contractor's personnel shall be identified in accordance with state regulations. The Contractor must park in designated areas in close proximity to each school building. At a minimum, the Contractor shall provide his/her personnel with clean uniforms to be worn while performing their duties. Additional personal protective equipment required for the safe performance of work shall be determined and provided by the Contractor in accordance with California law.

Nonchemical Alternatives

Caulking and sealing pest harborages and pathways is the preferred method for preventing or controlling an infestation and shall be part of the routine IPM services. The Contractor shall make limited applications of approved sealants and other exclusion materials under sinks, as well as around cabinets, pipe chases, windows and doors, exterior areas, etc., in lieu of or to augment other pest management methods. The Contractor shall make recommendations to the IPM Coordinator for any large-scale application (i.e., whole room, exterior of building, etc.) of sealants and other exclusion materials. In addition, the use of vacuum cleaners, mechanical traps, insect light trapping devices, and glue boards used for rodent management should be fully integrated into the day-to-day operations of the program. The Contractor must be proactive at identifying and, in some cases, correcting known or suspected problem areas that provide food, water, harborage, and access for pests in and around the school building. Snap traps, trapping devices, and glue boards used for rodent management or monitoring activities must be intensively maintained. The Contractor shall discard rodents killed or trapped within 24 hours. Trapping should not be performed during periods when maintenance will be delayed by holidays, weekends, etc. Traps shall be placed out of general view and away from any access by children or staff for safety and aesthetic purposes, and located where they will not be affected by routine cleaning procedures. The Contractor shall describe in the proposal their organization's approach to meeting these requirements.

Pesticide Alternatives

Pesticide applications shall be made only to areas of known pest infestation or activity, and where nonchemical control measures, such as traps, caulking, sealing, cleaning, habitat modification, physical, mechanical, and biological control were not successful or are not feasible. Application of pesticides shall not occur until a full inspection has been completed. If chemicals are needed, least-hazardous pesticides and formulations, such as boric acid, silica gels, and diatomaceous earth should be considered whenever possible.

Pesticide applications that may impact the operations or occupants of a school building shall be permitted only during hours when the school building is closed and after all notification procedures have been met. A contingency plan for performing pesticide application in the school building should be part of the Pest Management Plan and Service Schedule. This should include a list of pests, pesticide products, formulations, application methods, timing of application, and other relevant information that may be needed in specific situations and school buildings. The following shall be used as thresholds for the initiation of control actions in the school building:

1. An average of two cockroaches per trap within an area during each service interval.
2. One mouse or rat dropping per room.
3. One rat burrow or runway in outside areas of the school building.
4. Any stinging insect nest within reach from the ground.
5. Recurring problems with other pests, e.g., flies, spiders, or stored product pests, which cannot be resolved using nonchemical techniques.

The Contractor shall minimize the use of and potential exposure to pesticides wherever possible.

For example:

1. Use nonchemical control methods and materials.
2. Use crack and crevice or bait application of pesticides in pest harborage areas.
3. Integrate control methods (i.e., structural repairs, trapping, sanitation, etc.).
4. Pesticide space sprays (including fogs and ultra-low volume applications) will be restricted to unique situations for which no alternative measures are practical or effective. Because notification must be sent home 72 hours prior to spraying, the Contractor must confer with the IPM Coordinator to develop a specific plan.
5. Routine preventive spray treatments are prohibited. The broadcast or barrier treatment of an interior or exterior area with a pesticide must be specifically requested by the Contractor and approved by the IPM Coordinator, prior to performing the treatment. Preventive treatments are acceptable only on a case-by-case basis. The Contractor must provide detailed plans; list the

rationale for the treatment, and the methods of application if preventive treatment is warranted for a specific school building or landscape area. Preventive treatments are subject to review by the IPM Coordinator and can be eliminated at any time.

Reporting

The Contractor's Program Technical Supervisor shall, at a minimum, provide annual written reports to the school district and attend regular meetings with the IPM Coordinator, school administration, school liaisons, and other concerned individuals. These reports and meetings will address all pest management activities provided by the Contractor for each school building and evaluation of the IPM program's progress. These reports should identify school building conditions or personnel practices that require correction by the school district in order to promote the program's overall effectiveness. In addition, the Contractor shall provide monthly service reports to the IPM Coordinator within 15 days following the end of each month. The service reports shall include, but not be limited to, the following:

1. Facilities serviced.
2. Man-hours for each school building for Routine Services.
3. Location, man-hours, and work description of Special, Emergency, and Additional Services.
4. Results of monitoring and inspections, including accepted common names of pests, numbers of each pest, and the location in the school building.
5. Written evaluation of sanitation conditions, structural deficiencies, repairs needed, repairs completed, and immediate and long-term program goals for either resolving pest problems or improving the IPM program within each school building and management area.
6. Identification and listing of pesticides used by common/generic name (no codes), concentration and quantity of finished spray used, and other pest management techniques used for each school building and management area.

Evaluation

Monthly service reports and annual reports will be used by the IPM Coordinator and the Contractor to develop tangible means for evaluating the overall IPM effort in school facilities. The Contractor's Program Technical Supervisor shall meet as needed with the IPM Coordinator to discuss the status of the pest management program and review program activities and reports, or resolve ongoing or special problems. If the school district hires an outside evaluator, the contractor may be required to meet with this person or provide information.

Training

The Contractor shall include, in the proposal, a detailed description of the in-service training programs provided to their personnel, including pertinent documentation and records. In addi-

tion, the Contractor should be able to provide training or develop a plan to use outside expertise to provide training on all aspects of IPM program design and implementation to a wide array of school-associated personnel, including school administrators, maintenance and housekeeping staff, the IPM Coordinator and school liaisons, and community members.

Notification

The Contractor shall provide the IPM Coordinator and school liaisons with a list of pesticides that may be used in school before the school year begins. Product labels and Material Safety Data Sheets for all pesticides shall be provided to the IPM Coordinator and made available in the school IPM program logbook for review by school liaisons, parents, and other interested parties. The Contractor shall notify the IPM Coordinator and school building liaisons in advance of all pesticide applications to ensure that all provisions of the State and school district's advance notification policies are met. Although each school district is ultimately responsible for student notification of pesticide use and for sending notification home with students, the Contractor will be responsible for satisfying all legal requirements for posting. The Contractor will notify the IPM Coordinator upon completion of pesticide applications made in and around school buildings.

Inspections

Throughout the duration of this contract, school district personnel will periodically inspect school facilities to determine the effectiveness of the IPM program and Contractor compliance with the contract. Inspection results will be documented in writing and submitted to the Contractor. The Contractor shall initiate actions promptly to correct all deficiencies found. It shall be the Contractor's responsibility to furnish an adequate supply of materials necessary for school personnel to inspect the interior of all rodent bait stations. These materials may include Allen wrenches to loosen and retighten fasteners, keys to open locks, or replacement self-locking plastic ties. Implements to cut plastic ties are not included under this provision.

Purchase of Ancillary Services/Equipment

The Contractor may need to purchase additional equipment or provide additional services to ensure that the IPM program is fully implemented. The school district has the right to negotiate the purchase of ancillary equipment and services with the Contractor and adjust the contract accordingly.

Establishing Integrated Pest Management Policies and Programs:

A Guide for Public Agencies



**UNIVERSITY OF
CALIFORNIA**

Division of Agriculture
and Natural Resources

<http://anrcatalog.ucdavis.edu>

PUBLICATION 8093

Establishing Integrated Pest Management Policies and Programs: *A Guide for Public Agencies*

MARY LOUISE FLINT, University of California Statewide Integrated Pest Management Program, UC Davis; **SHEILA DAAR**, Daar Consulting Group, Berkeley, CA; and **RICHARD MOLINAR**, University of California Cooperative Extension, Fresno.

INTRODUCTION

As a result of growing concerns about health and environmental problems associated with pesticides, public agencies are facing increasing demands from their employees, their clientele, and the general public to explain and justify their use of these materials. Agencies must be able to respond with careful, thoughtful answers. Managing insects, plant pathogens, weeds, rodents, and other organisms that become pests is a complex science; applying pesticides safely and effectively in public areas requires substantial expertise and skill. Responses to the public's questions must communicate an understanding of this complexity and a genuine concern for health and environmental problems.

Adoption of a written policy and procedures for making pest management decisions provides an agency with an effective way to respond to the questioning public and at the same time improves the agency's internal decision-making process, resulting in more efficient, more effective, and safer resolution of pest problems. Involving the public and employees in the development and evolution of a pest management policy can help educate everyone on the potential hazards and benefits of pest management practices.

What Is Integrated Pest Management?

Integrated pest management (IPM) is a pest management strategy that focuses on long-term prevention or suppression of pest problems with minimum impact on human health, the environment, and nontarget organisms. Preferred pest management techniques include encouraging naturally occurring biological control; using alternate plant species or varieties that resist pests; selecting pesticides with a lower toxicity to humans or nontarget organisms; adopting cultivating, pruning, fertilizing, or irrigation practices that reduce pest problems; and changing the habitat to make it incompatible with pest development. Pesticides are used as a last resort when careful monitoring indicates that they are needed according to preestablished guidelines. When treatments are necessary, the least toxic and most target-specific pesticides are chosen. Implementing an integrated pest management program requires a thorough understanding of pests, their life histories, environmental requirements, and natural enemies, as well as establishment of a regular, systematic program for surveying pests, their damage, and other evidence of their presence.

What Are Special Issues for Public Agencies?

For many years, integrated pest management programs have been implemented in agricultural cropping systems. IPM programs in schools, parks, and other public places have been a bit slower to be adopted. Public agencies face infrastructure complexities and public relations issues that are not a concern for individual farmers making pest management decisions.



Pest management programs in public agencies rely on the coordinated activities of many individuals. Often, several different departments and supervisors are involved in activities that affect pest problems and their management. There may be different supervisors for janitorial staff, pesticide application staff, plant maintenance staff, landscape maintenance staff, and landscape design staff—yet all have critical roles in a pest management program. Each group may have different priorities and a different way of doing business; there may not be effective communication between departments. However, these divisional barriers must be broken down and all employees must be enlisted in a program that shares common goals and approaches to achieve success.

In addition, public agencies must be accountable and responsive to the public. People in the community often want justification for the use of certain types of pesticides and at the same time may demand to know why the agency isn't doing a better job of controlling organisms that they consider pests. A written IPM policy enhances an agency's ability to respond to public concerns and coordinate activities within its bureaucracy.

What Will an Integrated Pest Management Policy Do for Your Agency?

Although the initial reason for developing an integrated pest management policy may be to explain and justify your agency's use or nonuse of pesticides, it will provide many other benefits as well. For instance, a written policy provides procedural guidelines for the agency. There are many federal, state, and local regulations that must be followed when storing, transporting, applying, and disposing of pesticides, and there are specific laws regarding who can recommend pesticides and how applicators must be trained in California. Specific safety equipment and procedures are required for the use of many pesticides. A written policy assures that these laws and regulations are adhered to each time a pesticide is used and helps you document that proper procedures were followed.

Developing and establishing a set policy educates applicators, administrators, other employees, and the general public about when and why pesticides are used and when alternative methods might be adopted. It also helps employees gain a better understanding of their jobs. An IPM policy may reduce your agency's reliance on pesticides, protect the environment, and protect applicators, coworkers, their families, and the public. If problems do arise, the policy provides procedures for immediately handling the problem and helps you to document that your agency acted responsibly.

SETTING POLICY GOALS

The first step in establishing an integrated pest management policy is to determine the goals of your pest management program. Policy goals give your agency a framework on which to base individual decisions. All goals may not be met with each and every decision, but established goals will give your agency a set of priorities to work from. *Goals will vary considerably from agency to agency* according to the function of the agency, public and wildlife access to agency grounds, employee concerns, and political priorities. The overall goal for many agencies would be "to establish a more effective and safe pest management program"; however, this type of general goal is not specific enough to guide decision making. More specific goals might be divided into two categories: political, educational, and public relations goals for policy makers; and operational goals for basing individual pest control decisions.

Goals should be set with input from employees and the general public. Establishing goals is one of the most productive ways that people without technical expertise can participate in the policy-making process. Involving various factions of the community in policy development is a good way to garner widespread support for the program and policy later on. Pest management policy goals differ with the function of different agencies; examples of possible goals follow.

Examples of Political-Educational Goals

- Encourage employees to first consider alternatives to pesticides.
- Keep citizen complaints at or below current levels through effective practices and public education.

Examples of Operational Goals

- Design a written plan for implementing IPM procedures throughout the facility and for individual pests.
- Ensure that the public agency's governing board (supervisors, trustees, directors) is kept informed as to the progress of the IPM program. The board's support and encouragement can assure the program's presence and fiscal health.
- Establish procedures (e.g., through a technical review committee and periodic reevaluations) for assuring that the latest information is incorporated into pest management decisions.
- Develop procedures for allowing public input without disruption of the overall program.
- Make information accessible to the public and employees regarding pesticides used and areas treated.
- Ensure that applicators are educated regarding current pesticides, their hazards, and applications.
- Educate employees and the public about pest management problems and solutions.
- Develop protocols for plant inventory and pest problem survey.
- Establish monitoring programs and evaluative criteria to measure control success.
- Maintain pests at levels that prevent them from becoming a health hazard.
- Eliminate fire hazards (such as tall dry grass or dead trees) in a timely manner.
- Reduce or eliminate all use of pesticides in CDFA category I, II, or III (agency choice).
- Establish and maintain pesticide use reporting and recordkeeping.
- Provide employees with pest management training, including diagnostic skills and use of alternative pest control methods.
- Establish and maintain records of pest occurrence and levels at which they become a problem.
- Identify and evaluate cultural and environmental conditions on the grounds that seem to encourage pest problems.
- Use the safest effective practices whenever economically feasible.

PROCEDURES FOR DESIGNING AN IPM PROGRAM

Once policy goals are set, persons with pest management expertise within (and perhaps also outside) your agency must establish reasonable procedures for meeting these goals. At first, some operating guidelines will be crude, but you can refine them with time as your experience grows. However, it is important to have established procedures so you can document and measure their success and improve them with time. The procedures listed below are intentionally generic because of the great variety of pest management situations. Pest control procedures must be developed on a pest-by-pest basis, and procedures will change and evolve over time. You can get help by consulting the resources at the end of this publication, talking with University of California Cooperative Extension staff, consulting private pest management consultants, or talking with other agencies with similar problems. Remember to keep your policy goals in the forefront and to regularly document and reevaluate your program. Keep up with new ideas and practices through continuing education and professional publications.

The success and sophistication of your IPM program will depend on the experience, skill, education, and enthusiasm of your employees. Take these factors into account when establishing procedures. Don't expect employees to perform new tasks without encouragement and training. You may need to bring in outside expertise to assist in the first season of a new program. Expect to implement change over time, incorporating a few major component at a time.

Step-by-Step Procedures for Developing an IPM Program

1. **Identify all potential pests (including all life stages) in the system.** Verify damage symptoms associated with pests and identify natural enemies. For plant pests, this will require identifying plant species in the management area and developing pest lists for each host. Train all pest management personnel to accurately identify beneficials as well as major pests and their damage, and to seek help when they can't make a conclusive identification. Have materials (e.g., a field manual or identification texts such as those listed in the resources on p.11) and tools (e.g., a dissecting microscope and hand lens) available to assist in pest identification. Make provision for identifying new pests as they are observed (see step 9).
2. **For each pest, establish monitoring guidelines.** These may be crude at first but can be improved with experience. Monitoring methods vary from pest to pest (for more information, see the resources on p.11), but all involve regular (e.g., weekly) checking, visually or with traps, for pests or damage symptoms, or other evidence of pest presence (e.g., feces); methods also involve some way of quantifying observations. Also provide for monitoring of beneficials and natural enemies. Overall, the objectives of a monitoring program are to pinpoint precisely when and where pest problems may become intolerable and to determine the effectiveness of treatment actions. To determine the need for treatment, the objectives must be used with action thresholds, as discussed in step 3.
3. **Establish injury levels and action thresholds for each individual pest species before making any treatment.** An injury level is the pest population size (e.g., 10 aphids per leaf or 2 cockroaches per trap) that is associated with intolerable damage. Action thresholds are the set of conditions required to trigger a control action—usually a pesticide application.

Determine the infestation levels that will be intolerable to people or to structures or that will cause unacceptable damage at various times of the year, plant growth stages, situations, and so on. At the same time, devise a monitoring plan for detecting these pest levels and determining when to treat. Over time you will refine the injury levels and action thresholds; however, treatment is usually required when

- a regular monitoring program indicates that the pest population will reach the injury level if left untreated; and
- biological or environmental factors cannot be expected to reduce the pest problem within a reasonable time; and
- treatment cost and health and environmental hazards are considered less than the potential pest damage.

4. Establish a recordkeeping system. Good records are essential for evaluating and improving your IPM program and for reference when the public wants to know how you handle certain types of pests. Any recordkeeping system should include observations such as

- identity of the pest (to species if possible) and how the identification was made
- the size (density) of the pest infestation
- the geographic distribution of the pest problem in the managed area (a map of your facility can be useful for this)
- complete information on how you treated the problem, including what, how much, where, when, who, cost, application difficulties, and the effectiveness of treatment in solving the pest problem (short-term and long-term)
- the side effects of the treatment on nontarget species
- public complaints or other problems that arise, and positive feedback

5. Develop a list of acceptable management strategies for each pest. The preferred methods in an IPM program *prevent* pest problems and therefore eliminate the need for pesticide applications. These methods might include modifying structures or landscaping to be less conducive to pest survival, using pest-tolerant or pest-resistant cultivars, using cultural practices (such as mulches or mowing and the use of pruning and planting times that discourage pests), and educating the public to be more tolerant of pests. Encouragement of naturally occurring biological controls can be very important; in some cases, barriers, traps, or mechanical removal can be effective. Develop a list of pesticides that are effective against each pest but are least disruptive to the environment—for instance, soap sprays, microbials, botanicals, oils, and synthetic pesticides with low LD-50 and short persistence. Investigate and document the potential for using low rates, spot treatments, and other selective ways to integrate pesticides into an IPM program that is least disruptive to biological control agents and nontarget organisms. For instance, using bait stations or other formulations that reduce exposure to humans or nontarget organisms is an important way to reduce potential risks.

6. Develop specific criteria for selection of pest management methods. Make the criteria known to employees and the public. Although all criteria may not be met in every case, choices should meet the majority of the following requirements:

- least disruptive of natural controls
- least hazardous to human health
- least toxic to nontarget organisms and least damaging to the general environment
- most likely to produce permanent reduction of the pest
- easiest to carry out effectively
- most cost-effective in the short- and long-term

For instance, avoid the common practice of regularly scheduled perimeter sprays to keep invading species such as ants, beetles, spiders, or earwigs out of buildings. This strategy does not provide a long-term solution to a problem and may kill beneficials and promote pesticide resistance. Structural changes, habitat reduction around buildings, and the use of baits can provide long-term control in many cases.

7. Develop guidelines to be followed each time a pesticide is used. Prepare a checklist to be used each time an application is made. Important items on the checklist should include:

- choosing the safest material that is effective
- considering label signal words, persistence, impact on nontargets, and potential chronic human health effects
- considering the potential for treating only the most seriously infested areas (i.e., spot treatments) to allow for survival of natural enemies (this works for some insects and mites only)
- making sure the pesticide is registered in California for the situation and that you are aware of all laws regarding its use
- if required, making sure you have in hand a written recommendation for using the pesticide made by a licensed pest control adviser
- checking the pesticide label to make sure all precautions and legal requirements are being carefully adhered to
- making sure all safety equipment and clothing are used
- verifying that the person doing the application is certified and qualified to handle the equipment and material chosen and that the person has been adequately trained
- after the application, monitoring the pest population to see if the treatment was effective
- keeping written records
- obtaining the Material Safety Data Sheet (MSDS) for the pesticide from the manufacturer
- making sure your application equipment is appropriate for the job and calibrated
- being prepared for all emergencies and knowing whom to call for help and interim measures to take before help arrives

8. Designate a person to be responsible for each step along the way. These are the people (e.g., job titles) who will be responsible for making decisions, carrying out the various pest management and emergency operations described in your policy, and regularly evaluating the effectiveness of the program.

9. Develop a list of resources. Know where you can go when information or outside help is needed. Include resources for pest identification, pesticide recommendations, and information about pesticides, pest management, and handling emergencies. Build a library and have employees participate in training and continuing education programs on a regular basis. ([See the resources on p.11.](#))

10. Consider your IPM policy to be a “living document” that changes as you acquire experience and new information. Establish an oversight committee that includes persons with toxicological and pest management expertise to assist with initial review of procedures and future changes in the policy. Review the program regularly (e.g., annually). Involve environmental organizations, worker health advocates, and other interested members of the public or employee representatives from your facility in the development and revision of the IPM policy.

Outside Contractors

Some agencies have no staff or limited staff to devote to pest management activities. Some do not have staff with expertise or appropriate licenses to carry out certain pest management activities. In these cases, agencies will want to hire outside contractors for pest management services.

Contractors differ in their skills and experience, and it is important to hire a company that is reliable and knowledgeable about IPM practices and the goals of your IPM program. Performing appropriate preventive and monitoring activities may take extra time, so the lowest bidder may not always be the best company for your job. Be sure to specify needed IPM practices clearly in your contract and formalize a good communication system. Hire contractors who have appropriate pesticide application and pest control adviser licenses and training and who also have experience in IPM in situations such as yours. Ask them to provide you with their license number.

The first step in hiring a contractor is to prepare a request for qualifications (RFQ) that will allow you to prescreen and ensure that only qualified contractors submit proposals for the bid process. Next, prepare a request for proposals (RFP) that details the terms of your IPM policy. Evaluate the responses to the RFP according to the contractor's ability to meet the goals of your program. As part of the pest management contract, develop a quality assurance form (QAF). The QAF is filled out by the contractor each time a service is provided. It should detail information on pest sightings, sanitation and structural concerns, pesticides applied, traps or monitoring stations installed, pesticide use or other regulatory forms filed, and any additional pest management concerns.

BUILDING SUPPORT FOR YOUR IPM PROGRAM WITHIN AND OUTSIDE YOUR AGENCY

Once an IPM policy has been adopted by a city council, school board, or other policy-making body, it falls to agency staff or pest control contractors to implement the policy. Change never comes easily. There are a number of predictable obstacles within an agency—both psychological and institutional—to be overcome when initiating IPM programs. At the same time, even if the public has been involved with development of a policy, there are likely to be occasional complaints and controversies, especially as pests, pest control practices, and public concerns change.

Psychological Barriers to IPM Adoption

Psychological resistance to change

The problem: When pest control personnel are asked to make pest management decisions in a new way and to use new methods, they may feel that there is a negative implication regarding their past performance.

How to address it: Many factors contribute to the need to change pest management practices. Most of these factors are beyond the control of the individual pest manager. They include loss of effectiveness of many pesticides as pests develop genetic resistance; increased availability of less-toxic products or techniques; increased requirements for documentation, licensing, certification, and continuing education; and public concern about adverse health and environmental effects of pesticides. Adoption of IPM methods enables pest control professionals to respond to these forces for change and at the same time achieve cost-effective control of pests.

Loss of authority

The problem: Adopting an IPM approach may engender fear of many kinds of losses, including loss of personal authority or supervisory authority. In the first case, individuals may fear that their experience in the field will become devalued, particularly if their expertise has been in pesticide application. In the second case, supervisors may fear that the system will become more efficient and they will lose positions.

How to address it: Successful IPM implementation enhances both personal and supervisory authority. Many of the new, less-toxic pest control materials such as pheromones, microbial and botanical pesticides, insect growth regulators, and biological controls require application skills and equipment that are similar to conventional pesticides, and workers can readily learn necessary modifications to conventional practices. Mastery of IPM monitoring skills enhances the professionalization of pest management and can lead to upgrading job classifications. In terms of supervisory authority, IPM programs provide managers with greater decision-making responsibilities and an increase in the flexibility of staff assignments. For example, by emphasizing monitoring rather than prophylactic pesticide applications, staff time previously spent spraying can be redirected to other tasks, increasing overall productivity within a department.

Imagined difficulty in learning new technology

The problem: The techniques used in IPM may initially appear to require conceptual and operational skills beyond those of current staff.

How to address it: This fear can be overcome by building staff training into the IPM implementation program and by establishing a transition period during which pest management personnel experiment with and fine-tune IPM methods. Transition new practices in a step-by-step fashion so that not all changes are made at once.

Fear of IPM program failure

The problem: Supervisory personnel may believe that the IPM program will not work for them even though it has been successful for a nearby agency.

How to address it: IPM programs are specifically designed for the particular circumstances of each location, such as the plants and pests involved, microclimates at the site, and management history. While the IPM decision-making process remains the same no matter what the pest or site, the tactics and products used may vary greatly from one location or circumstance to another. This flexibility usually assures an appropriate solution to the pest problem.

Institutional Barriers to IPM Adoption

Fear that IPM means no access to pesticides

The problem: Some people think that IPM means never using chemical controls.

How to address it: While IPM definitely encourages alternatives to pesticides when feasible, chemical controls are used when necessary. However, in an IPM program, pesticides that are least disruptive, most selective to specific pests, and rapidly biodegradable are preferred over common, broad-spectrum materials. For instance, the microbial insecticide *Bacillus thuringiensis*, a naturally occurring bacteria that kills only certain groups of pest insects, is an example of the type of pesticide preferred for use in IPM programs. When chemical controls are used in an IPM program, every effort is made to reduce human and nontarget exposure, for instance, by putting materials in bait stations or within walls or by “spot-treating” specific areas rather than broadcast spraying.

Fear that IPM is more expensive than traditional pest control

The problem: Until agencies have experience with IPM, they may expect that it will cost more than their current program.

How to address it: While there are short-term start-up costs for any new technology, in the long run IPM has often proven to be more cost-effective than a strictly chemical control program. When possible, IPM programs substitute information gathering (monitoring) in place of other pest control activities. This can be very cost-effective. For example, by monitoring the 1,100 elm trees in their city rather than prophylactically spraying them against elm leaf beetles, the city of San Rafael, California, found that only a small portion of the trees required treatment. As a result, the city saved \$1,400 (including costs of monitoring) in the first year of its IPM program compared to the previous year when all trees were sprayed.

Also, IPM methods emphasize reducing the source of pest problems (e.g., eliminating pest habitat and food sources) rather than treating the pests themselves (e.g., spraying). This type of pest prevention program is more cost-effective than a continuing program of pest reduction that does not address the underlying cause of the infestation. For example, by permanently reducing habitats for rats (i.e., by filling rat holes with concrete, changing the design of garbage cans, and increasing frequency of garbage pickup), the National Park Service was able to permanently reduce rat populations in certain parks. Previous rat control programs that had relied on poison baits had not been successful despite large expenditures of labor and money.

Lack of in-house IPM expertise

The problem: Agency staff may be unfamiliar with IPM and not know where to go for information.

How to address it: While it is true that IPM education and training resources are not as widely available as those for chemical controls alone, good resources can be found in any community. Many agencies have found it feasible to hire an IPM specialist to work as a consultant to in-house pest control staff during the initial year or two of IPM implementation, or to create an IPM coordinator position and recruit nationwide. Increasingly, cooperative extension advisors or agents, college horticultural or entomological faculty, pest control advisers, and a nationwide network of nonprofit organizations involved in pest management, sustainable agriculture, and environmental protection are able to provide IPM information and advice. Periodicals and Web sites providing practical technical advice on IPM methods for specific pest problems are increasingly available. The resources at the end of this publication will assist anyone attempting to implement IPM programs.

SOME FINAL HINTS FOR IMPLEMENTING AN IPM PROGRAM

The following suggestions will help overcome barriers and smooth the transition to IPM implementation.

Mandate staff training in IPM. When writing the IPM policy document, include a requirement for the continuing education of pest management personnel. Ensure that budgetary allocations are made to assist them in obtaining the information, skills, and equipment they need to carry out the policy.

Start small. Begin IPM implementation in one location (e.g., one lawn in one park; one kitchen in one school) and include short-term objectives. For example, when dealing with a number of pest problems, identify one of the pests likely to respond quickly to an IPM approach so that a short-term objective can be realized. Test the IPM methods and fine-tune them. When the program is working successfully in one area or against one pest, expand the program.

Don't change everything at once. To the maximum degree possible, retain communication and accountability procedures already in use. Tailor new recordkeeping and reporting forms to fit existing agency formats. Recycle existing equipment to uses consistent with IPM methods rather than immediately eliminating the equipment.

Share the process. Involve all pest management personnel in the day-to-day IPM program process as early as possible so that they will understand and support the program during the sometimes difficult transition period.

Emphasize communication and plan for future training. During the IPM transition period, keep all personnel informed about what is planned, what is happening now, the expected outcome, and what will happen next. Prepare written records and visual aids that will remain in the agency when persons associated with development of the IPM program are no longer there.

Build in a reward system. Identify benchmark objectives (e.g., testing of mechanical weed control methods in one park during a 3-month period or a 10 percent reduction in pesticide use in the first year). Encourage staff to achieve objectives (e.g., a letter of commendation from agency head, recognition at an awards ceremony, an article in an agency bulletin, merit pay increase).

Publicize the program. Develop good rapport with agency public relations personnel and with the local news media. Include field and management staff at photo and interview sessions about the IPM program.

Involve the community. Form an IPM advisory committee composed of interested organizations, members of the public, and pest control professionals. They can help make IPM implementation a budgetary priority in the agency, can donate or locate resources that may not otherwise be available to the agency, and may add needed expertise and experience to the process.

RESOURCES FOR AGENCIES DEVELOPING IPM POLICIES

General Information

In addition to the resources listed in this section, other agencies that deal with problems similar to yours, as well as pest management consultants, can be valuable sources of general information.

The University of California County Cooperative Extension offices are a valuable resource. In California, check your phone book under University of California or Cooperative Extension; or, see the University of California Agriculture and Natural Resources Web site, <http://ucanr.org/>.

Professional Organizations

- Association of Applied IPM Ecologists (AAIE) <http://aaie.net/>
- California Agricultural Production Consultants Association (CAPCA) <http://www.capca.com/>
- California Weed Science Society (CWSS) <http://www.cwss.org/>
- Pesticide Applicators Professional Association (PAPA) <http://www.papaseminars.com/>

Web Sites

The University of California Statewide IPM Program Web site at <http://www.ipm.ucdavis.edu> has information on managing and identifying pests of landscape, structures, agricultural crops, and pests of medical importance. There are links to pages related to pesticide toxicity, water quality, and other related resources.

The California Department of Pesticide Regulation IPM for Schools Web page at <http://www.schoolipm.info/> has complete information on California's IPM in Schools Program as well as links to other information relating to managing pests in public buildings and landscapes.

The U.S. EPA Region 9 has an IPM manual for schools, *Integrated Pest Management for Schools: A How-to Manual* on its Web site <http://www.epa.gov/region09/toxic/pest/school/>. The manual includes appendixes that include IPM contract performance specifications and sample monitoring forms.

Many (but not all) pesticide Material Safety Data Sheets (MSDS) and labels are available at the Crop Data Management Systems Web site: <http://www.cdms.net/manuf/manuf.asp>

Other useful Web sites related to pesticides include:

- National Pesticide Information Center <http://npic.orst.edu/links.htm>
- Exttoxnet (Extension Toxicology Network) <http://ace.orst.edu/info/exttoxnet/ghindex.html>
- U.S. EPA Reregistration Fact Sheets <http://www.epa.gov/pesticides/>

Books and Other Literature

A free catalog is available from University of California Agriculture and Natural Resources Communication Services (6701 San Pablo Avenue, Oakland, CA 94608-1239; <http://anrcatalog.ucdavis.edu>; phone 1-800-994-8849/510-642-2431) that lists many publications of value in managing pests, including those listed below as University of California ANR publications.

- Dreistadt, S. H. 1994. Pests of landscape trees and shrubs: An integrated pest management guide. University of California ANR Publication 3359.
- Flint, M. L. 1998. Pests of the garden and small farm: A grower's guide to using less pesticides. 2nd ed. University of California ANR Publication 3332.
- Flint, M. L., and P. Gouveia. 2001. IPM in practice: Principles and methods of integrated pest management. University of California ANR Publication 3418.
- Mallis, A. 1997. Handbook of pest control. 8th ed. Cleveland, OH: Mallis Handbook and Technical Training Company.
- Marer, P. J. 1991. Residential, industrial, and institutional pest control. University of California ANR Publication 3334.
- O'Connor-Marer, P. J. 2001. The safe and effective use of pesticides. 2nd ed. University of California ANR Publication 3324.
- Salmon, T. P., and R. E. Lickliter. 1984. Wildlife pest control around gardens and homes. University of California ANR Publication 21385.
- Whitson, T. D., L. C. Burrill, S. A. Dewey, D. W. Cudney, B. E. Nelson, R. D. Lee, and R. Parker. 2001. Weeds of the west. 9th ed. Western Society of Weed Science. Available from UC ANR Communication Services as Publication 3350.
- Zavala, M. 1991. The illustrated guide to pesticide safety/ Guía ilustrada para el uso seguro de pesticidas. Instructor's Edition. University of California ANR Publication 21489.

FOR MORE INFORMATION

Visit our online catalog at <http://anrcatalog.ucdavis.edu>. You can also place orders by mail, phone, or fax, or request a printed catalog of publications, slide sets, videos, and CD-ROMs from

University of California
Agriculture and Natural Resources
Communication Services
6701 San Pablo Avenue, 2nd Floor
Oakland, California 94608-1239

Telephone: (800) 994-8849 or (510) 642-2431

FAX: (510) 643-5470

E-mail inquiries: danrcs@ucdavis.edu

An electronic version of this publication is available on the DANR Communication Services Web site at <http://anrcatalog.ucdavis.edu>.

Publication 8093

© 2003 by the Regents of the University of California, Division of Agriculture and Natural Resources. All rights reserved.

The University of California prohibits discrimination against or harassment of any person employed by or seeking employment with the University on the basis of race, color, national origin, religion, sex, physical or mental disability, medical condition (cancer-related or genetic characteristics), ancestry, marital status, age, sexual orientation, citizenship, or status as a covered veteran (special disabled veteran, Vietnam-era veteran or any other veteran who served on active duty during a war or in a campaign or expedition for which a campaign badge has been authorized). University Policy is intended to be consistent with the provisions of applicable State and Federal laws.

Inquiries regarding the University's nondiscrimination policies may be directed to the Affirmative Action/Staff Personnel Services Director, University of California, Agriculture and Natural Resources, 300 Lakeside Drive, 6th floor, Oakland, CA 94612-3550; (510) 987-0096. **For information about downloading this publication, telephone (530) 754-5112. For information on obtaining this publication, call (800) 994-8849.**

To simplify information, trade names of products have been used. No endorsement of named or illustrated products is intended, nor is criticism implied of similar products that are not mentioned or illustrated.

pr-01/03-SB/VFG



This publication has been anonymously peer reviewed for technical accuracy by University of California scientists and other qualified professionals. This review process was managed by the ANR Associate Editor for Human and Community Development.

How to Collect and Preserve Specimens for Identification

You can get help with pest identification from your County Department of Agriculture and University of California Cooperative Extension offices (look in your phone book under County Government). Often the entomology or botany departments of local universities and junior colleges can help.

If your pest problem is common in your area, the identification specialist may be able to confirm your identification over the phone just from your description of the organism and/or the damage it caused. Often, however, they must inspect the specimen directly.

Collecting Insects and Mites for Identification

Whenever possible, ask how your identification specialist would like the specimens preserved, and try to collect more than a single specimen. If you aren't able to ask about preservation before you collect, the following are useful guidelines.

Larger insects (those larger than aphids) or insects with hard bodies should be placed in a plastic container, such as a pill bottle, film canister, or other container with a snap-on lid. Crumpled tissue or cotton in the container can keep the insects from rattling around and losing body parts. Mail or hand-deliver the container to the identification specialist. If you are mailing specimens, it is a good idea to put the container in the freezer overnight to kill the insects before they go through the mail.

Very small insects or mites can be collected on plastic tape. Gently pat the insect or mite with the sticky side of the tape and secure the tape to a sheet of white paper. Be careful not to clutter the tape with extraneous debris. The paper with the tape can be mailed or hand-delivered to the identification specialist. Alternatively, insects and mites, even soft-bodied species such as aphids, can be left to dry out in a container and the identification specialist can rehydrate them for study later.

Collecting Plant Specimens for Identification

If you want to have a damaged plant inspected or a weed identified, place the plant between two sheets of paper and enclose in a file folder or place between two pieces of cardboard. If you are unable to deliver the specimen in person immediately, it is likely to shrivel or mold. In that case, use the process outlined below.

Preserving a Plant Specimen

Lay the plant between two sheets of writing paper and place on a flat surface. Try to spread the plant out so that leaves and stems are not covering each other. On top of the paper set several heavy, flat objects (such as phone books) large enough to cover the plant. Press the plant in this manner until it is completely dry. At this point, the specimen can be mailed in a file folder inside a padded envelope.

Plants preserved in this manner can also be kept in a file for future reference regarding weeds, pest damage symptoms, etc. To preserve the plant for your own file, place it on one half of the inside of a file folder. Cut a piece of clear contact paper the size of half the file folder. Separate the backing from the contact paper and lay the contact paper over the plant and folder, pressing out air bubbles by moving your hand from the inside outward. Write the name of the plant (if known), the date, and the location where it was collected on folder.

Keeping a Record

If you send a sample specimen for identification, we suggest you keep another for your own reference, because samples are rarely returned. Along with the sample, you should send records of potentially important information about the situation or problem surrounding the specimen. Keep a copy of this information for yourself. We suggest you follow this format:

- date the specimen was collected
- place or address where the specimen was collected and type of area (e.g., lawn, parking lot, etc.)
- specific area where the specimen was collected (e.g., "north side of building 1A," "under a stone," etc.)
- host plant, if the insect was found on a plant

The Pest Management Assessment Tool is meant to help consultants, pest control operators, or IPM Coordinators understand the pest management system at a school. This includes the organizational structure, pest management policies, key pests and how they are managed, and conditions conducive to pest problems. The Tool can help the assessor remember what to look for and what questions to ask during an initial pest management assessment.

The Assessment Tool can also be used to train school personnel in monitoring procedures and can help remind the IPM Coordinator of the elements of an effective IPM program.

This Assessment Tool consists of a number of forms, all of which can and should be altered to fit your particular situation. Computer software exists that can help you create and modify forms. With an electronic scanner, you can scan in forms from other sources and modify them to fit your needs. You can also find these forms online at www.schoolipm.info.

Forms:

1. Pest Management Summary Form
2. Pesticide Use, Storage, and Disposal Checklist
3. Pest Inspection/Sanitation Report
4. Pest Proofing/Repairs Needed Inside
5. Pest Proofing/Repairs Needed Outside

Pest Management Summary Tool

Date completed _____

School #1 _____

School #2 _____

School #3 _____

GENERAL SCHOOL INFORMATION

School Address _____

School District _____ Last Day of School _____

Superintendent _____ Phone Number _____

Address _____

Address _____

email _____ No. of years in position _____

Principal _____ Phone number _____

email _____ No. of years in position _____

PTA President _____ email _____

No. of Real Buildings _____ No. of Portables _____

POLICY AND PLANNING

IPM Policy for District? _____

Pest management budget? _____

Cost accounting for pest management? _____

IPM Plans for key pests? _____

Annual report on pest management? _____

Approved pesticide list? _____

Restricted pesticide list? _____

Other pesticide lists? _____

Policy on personal ownership/use of pesticide? _____

In compliance with State worker health and safety requirements? _____

What is the attitude toward trial and error and experimentation in pest management:

Attitude of managers? _____

Attitude of administration? _____

Are pest prevention techniques used? _____

Are they encouraged? _____

Are pest management implications considered prior to new construction or building renovation? _____

Are pest management implications considered prior to new landscaping or landscaping renovation? _____

TRAINING

Training in pesticide safety, use, and disposal? _____

Training in pest management is required? _____

How much? _____

IPM training included? _____

How much? _____

Who provides training? _____

Continuing education units offered? _____

Opportunities for pursuing State licensing (QAC, QAL)? _____

MONITORING/RECORDKEEPING

How often and under what circumstances is the campus inspected for pest problems or conditions conducive to pests? _____

Monitoring program in place for key pests? _____

Monitoring data recorded? _____

How: By hand? ____ Computerized? ____

Where are records kept? _____

How are pest sightings or complaints about pests relayed from teachers and admin. staff to pest management staff? _____

Are sightings and complaints recorded? _____

Are pest control treatments evaluated for effectiveness? _____

Are pest control strategies modified to reflect the evaluation? _____

COMPLIANCE WITH THE HEALTHY SCHOOLS ACT (AB2260)

School designee/IPM Coordinator selected? _____

(Include name and other information below under "Organizational Structure for pest management.")

Annual pesticide use notification letter sent? _____

Number of people on registry? _____

People on registry notified for each pesticide application (including those of contractor)? _____

Pesticide applications posted? _____

ORGANIZATIONAL STRUCTURE FOR PEST MANAGEMENT

Pest management activities carried out by district staff or school staff? _____

IPM Coordinator _____

Address _____

Address _____

Phone number _____ Fax number _____ email _____

No. of years in position _____ Licenses held _____

School Designee (if different from above)

Address _____

Phone number _____ Fax number _____ email _____

No. of years in position _____ Licenses held _____
 District Supervisor for Maintenance (if different from above) _____
 Address _____
 Address _____
 Phone number _____ Fax number _____ email _____
 No. of years in position _____ Licenses held _____
 Other Important District Managers _____
 Main Groundskeeper _____ Phone number _____
 No. of years in position _____ Licenses held _____
 Total No. of Grounds staff _____ No. holding licenses _____
 Head Custodian Phone number _____ No. of years in position ____ Licenses held ____
 Total No. of Custodians _____ No. holding licenses _____
 Outside Contractors _____
 Address _____
 Address _____
 Contact name _____ Phone number _____
 Outside contractors provide district/school with periodic reports? _____
 What frequency? _____
 Work orders generated by _____
 Work orders approved by _____
 Pesticide use records stored _____

FOOD PREPARATION/SANITATION

Cafeteria/Kitchen? _____
 Where do children eat? _____
 Food Prep on Site? _____
 Food in classrooms? _____
 Pets in classrooms? _____
 Lockers in school? _____
 Sanitation for lockers? _____
 Dumpster pickup schedule _____
 Dumpster clean? _____
 Lid on dumpster? _____

LANDSCAPING

No. and size of fields _____
 No. and size of lawns _____
 Other landscaping of concern _____

KEY PESTS

Insects in and around Structures _____

Primary pest _____

Pesticide(s) used _____

Other control methods _____

Secondary pest _____

Pesticide(s) used _____

Other control methods _____

Other/Comments _____

Conditions conducive to insect pests. (list all) _____

Vertebrates (other than birds) _____

Primary pest _____

Pesticide(s) used _____

Other control methods _____

Secondary pest _____

Pesticide(s) used _____

Other control methods _____

Other/Comments _____

Conditions conducive to vertebrate pests. (list all) _____

Bird pests _____

Pesticide(s) used _____

Other control methods _____

Other/Comments _____

Conditions conducive to bird pests. (list all) _____

Other structural pests _____

Pesticide(s) used _____

Other control methods _____

Turf Pests (other than weeds) _____

Primary pest _____

Pesticide(s) used _____

Other control methods _____

Secondary pest _____

Pesticide(s) used _____

Other control methods _____

Other _____

Conditions conducive to turf pests. (List all) _____

Weed Pests _____
Primary weed _____
Herbicide(s) used _____
Other control methods _____
Secondary weed _____
Herbicide(s) used _____
Other control methods _____
Tertiary weed _____
Herbicide(s) used _____
Other control methods _____
Additional weed(s) _____
Herbicide(s) used _____
Other control methods _____
Conditions conducive to weeds. (List all) _____

Other landscaping pests _____
Pesticide(s) used _____
Other control methods _____
Pesticide Use, Storage, and Disposal Checklist _____

Pesticide Use, Storage and Disposal Checklist

General

- ☐ Pesticides used in school are registered in California.
- ☐ Copy of each appropriate label is available at use site.
- ☐ Applicators using restricted materials are licensed or certified to apply the material or under the direct supervision of someone who is.
- ☐ Records kept of pesticide use. Records must include the following to comply with the Healthy Schools Act:
 - date and place of application
 - amount used
 - product names
 - active ingredient(s)
 - manufacturer's name
 - U.S. Environmental Protection Agency's product registration number.
- ☐ Pesticide use records kept for 4 years in an area accessible to the public.

Training

- ☐ School keeps written records of applicator training.

Applicators are trained in at least the following:

- Meaning of precautionary statements on the pesticide label
- Routes pesticides can enter the body and the signs and symptoms of pesticide over-exposure
- Emergency first aid and how to obtain emergency medical care
- Safety requirements and procedures
- Environmental concerns such as drift, runoff, and wildlife hazards
- Applicable regulations and the Material Safety Data Sheet
- The location of the completed Hazard Communication for Employees Handling Pesticides in Noncrop Settings (Pesticide Safety Information Series N-8 from the Department of Pesticide Regulation Appendix P or your County Agricultural Commissioner).

Equipment

- ☐ Equipment in good repair and safe to operate.
- ☐ Equipment for mixing, loading, transferring, or applying pesticides is inspected before each day of use.

Emergency Plans

- ☐ List of emergency phone numbers in vehicles and/or an accessible area near a phone.
- ☐ List of first aid procedures in vehicles and/or at use sites.
- ☐ Name, address, and phone number of facility at which medical care is available is prominently posted in vehicles and/or at use sites.

Storage and Disposal

- ☐ Pesticides with signal words "Danger" or "Warning" stored in locked area that is dry, separate from food and feed, and away from children and pets.
- ☐ Sign reading "Danger: Poison Storage Area. All unauthorized persons keep out." posted on storage area.
- ☐ Pesticides with signal word "Caution" stored in dry areas away from children, preferably under lock and key.

Pest Inspection/Sanitation Report

Date _____ School _____

Building#/Location _____

Inspector _____ Inspection Type _____ Initial _____

Quality Control _____ Routine _____

Evidence of Infestation(s) _____

Pest _____ Location _____

Pest _____ Location _____

☐ Ants ☐ Fleas ☐ Cockroaches ☐ Stored Prod. Pests ☐ Mice ☐ Pigeons ☐ Rats

☐ Other _____

Sanitation Survey

Food Preparation: ☐ Yes ☐ No

Receiving: ☐ Yes ☐ No

☐ Equipment clean

☐ Floors clean

☐ Appliance drip pans clean

☐ Area neat and tidy; no clutter

☐ Floors clean

☐ Empty boxes stored in cold storage

☐ Floor drains clean

☐ Empty boxes stored away from kitchen

☐ Sink drains clean

☐ Public and Staff Areas

☐ Counters/Tables clean

☐ Restrooms clean

☐ Food stored pest-proof containers

☐ Plumbing in good repair; no leaks

☐ Perishables stored in refrigerator

☐ Locker room clean

☐ Garbage removed daily at end of day

☐ Locker room free of food and food waste

☐ Spillage cleaned regularly

☐ Employee lounge clean

☐ Floors and counters dry; no standing water

☐ Food stored properly in lounge

☐ Plumbing in good repair; no leaks

☐ Food stored properly in classrooms

☐ Windows/doors screened

☐ Trash removed daily before end of day

☐ Gaps around/under doors or windows repaired

- ☐ Janitorial closet clean
- ☐ Pest proofing needed
- ☐ Pest Proofing needed
- ☐ Storage Areas
- ☐ Exterior
- ☐ Floors clean
- ☐ Dumpster/garbage cans cleaned weekly
- ☐ Floor drains clean
- ☐ Dumpster/garbage cans have lids
- ☐ Food stored in pest-proof containers
- ☐ Lids closed on dumpster/garbage cans
- ☐ Recyclables cleaned before storing
- ☐ Garbage area downwind from kitchen
- ☐ Spillage cleaned regularly
- ☐ Dumpster/Garbage area clean
- ☐ Items stored 6" to 8" off floor
- ☐ Garbage removed at least weekly
- ☐ Items stored 12" to 18" away from wall
- ☐ Pet waste removed daily
- ☐ Stock rotated
- ☐ Loading dock clean
- ☐ Area neat and tidy; no clutter
- ☐ Gaps under/around doors repaired
- ☐ Pest proofing needed
- ☐ Area is trash- and weed-free
- ☐ Other _____
- ☐ Area is dry; no standing water
- ☐ Pest proofing needed
- ☐ Comments/Recommendations _____
- _____
- _____

Pest Proofing/Repairs Needed Inside

Date _____ Inspector _____

Facilities Manager _____

Building#/Location/Address _____

For each repair, specify location and action needed. Draw a floor plan on the reverse side of this form to clarify locations. State priority for each work item.

■ Seal holes in wall around pipes, cables, and wires

■ Seal cracks and crevice with caulk or paint

■ Seal other holes 1/4" or larger

■ Fix leaky plumbing

Doors ☐ Repair ☐ Replace ☐ Weather-strip ☐ Add kickplate

Other _____

☐ Correct excessive moisture problems

☐ Remove clutter

☐ Organize storage rooms/closets

☐ Store rodent nesting material (fabric, paper, rug scraps, plastic, insulation) in rodent-proof containers

☐ Clean drains

☐ Screen drains

☐ Cap drains in basement floors

☐ Store human and pet food in pest-proof containers

☐ Improve sanitation

☐ Dispose of insect- or rodent-infested goods

☐ Remove fecal matter (rodents, bats, birds)

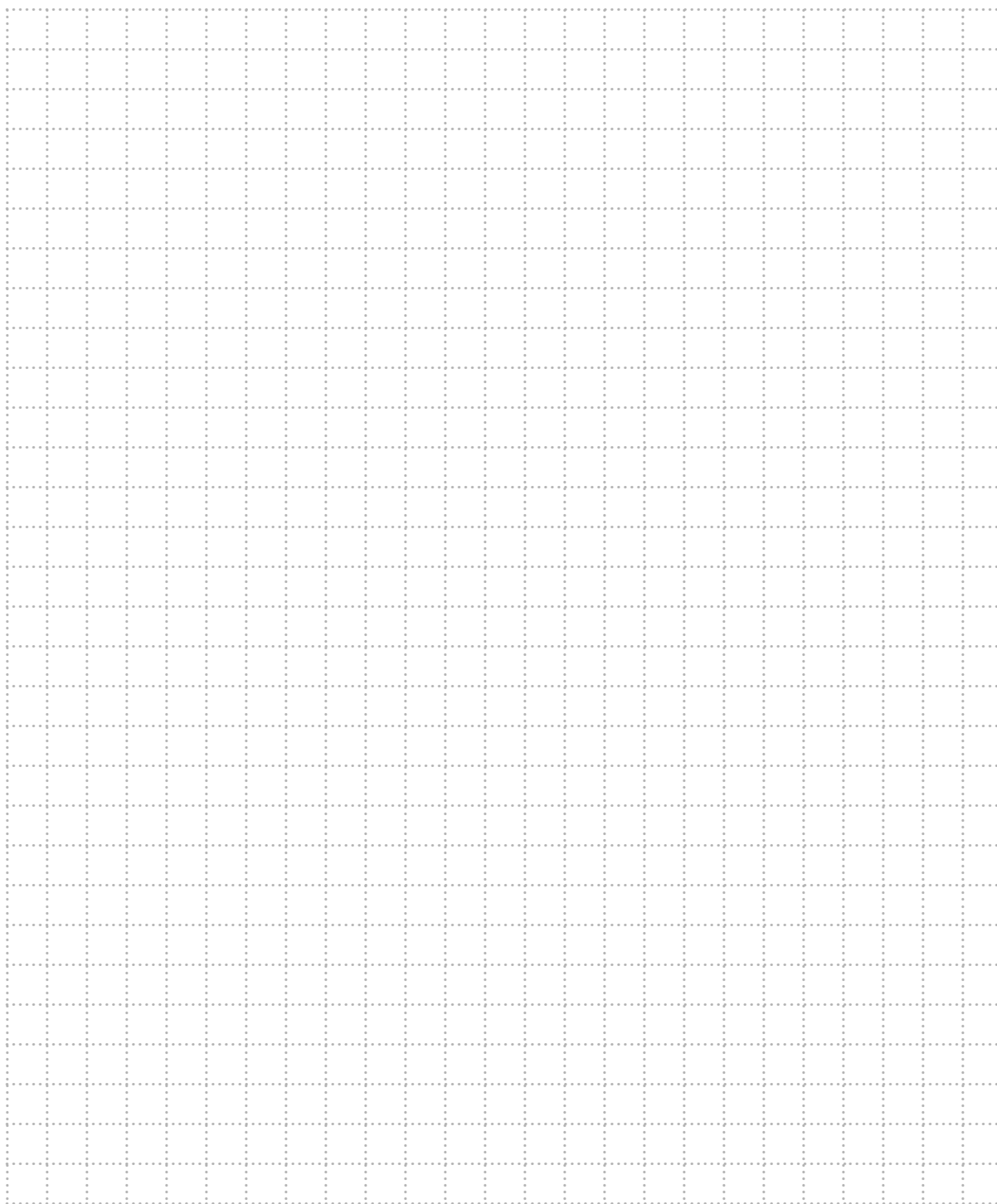
☐ Sanitize animal droppings

☐ Investigate secondary pest potential from rodent infestation (e.g. fleas, mites)

Floor Plan

Building location _____

Draw a floor plan and mark locations for repairs or pest-proofing.



Pest Proofing/Repairs Needed Outside

Date _____ Inspector _____

Building#/Location/Address _____

For each repair, specify location and action needed. Draw a building plan on the reverse side of this form to clarify locations. State priority for each work item.

- Cut vegetation back from building walls at least 18 inches
- Remove ivy or other vines from sides of buildings or nearby trees
- Trim back tree branches that touch or rub against building
- Seal /repair air conditioning units
- Seal holes in wall around pipes, cables, and wires
- Seal other holes 1/4 inch or larger

Doors ☐ Repair ☐ Replace ☐ Weatherstrip ☐ Screen
Other _____

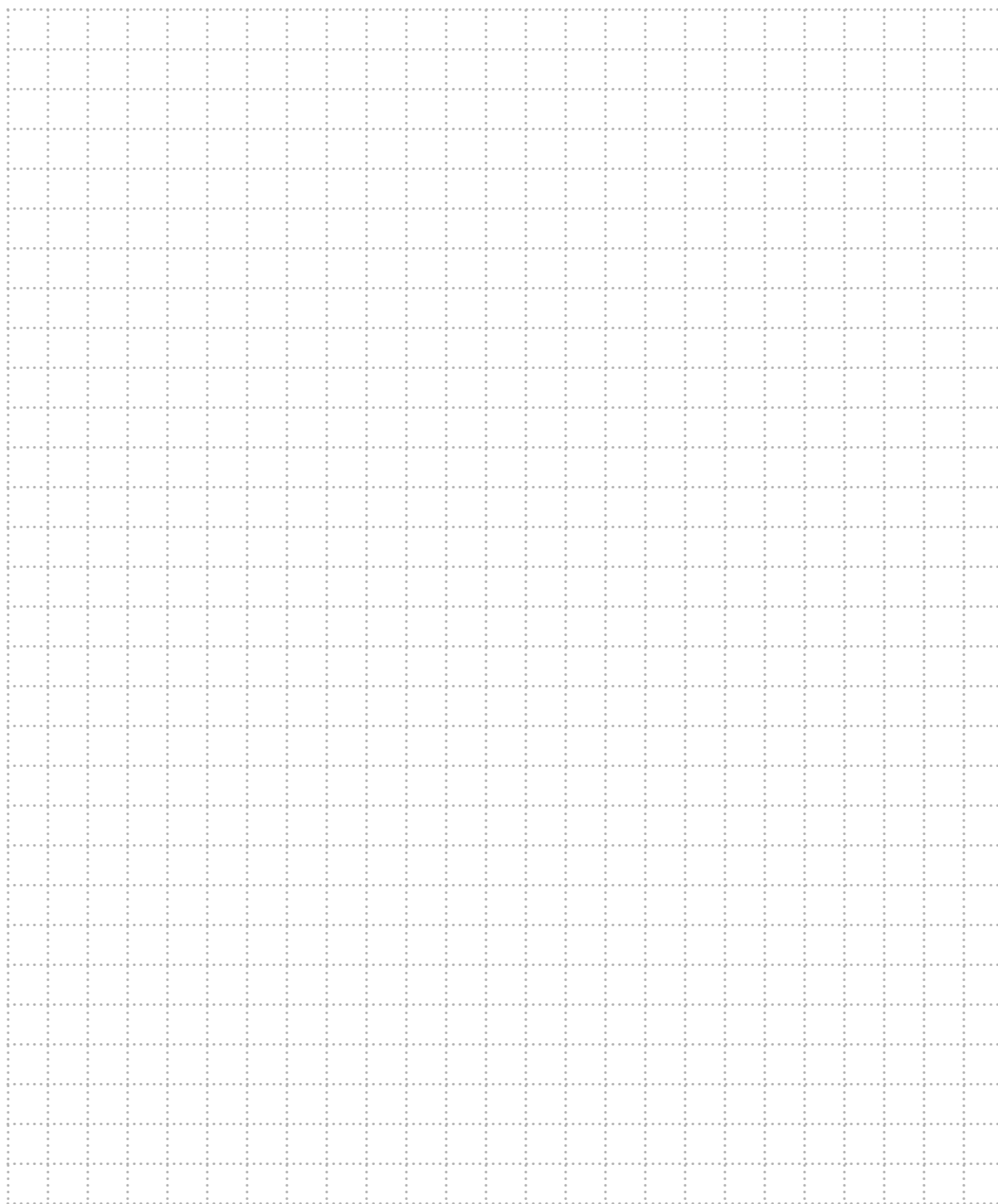
Windows ☐ Repair ☐ Replace ☐ Weatherstrip ☐ Screen
Other _____

- ☐ Repair roof
- ☐ Move compost into rodent proof container
- ☐ Fix leaking irrigation
- ☐ Eliminate standing water
- ☐ Improve drainage
- ☐ Screen drains
- ☐ Bring order to storage sheds/garages
- ☐ Store rodent nesting material (fabric, paper, rug scraps, plastic, insulation) in rodent-proof containers
- ☐ Store grass seed and pet food in rodent-proof containers
- ☐ Remove debris, lumber or rock piles
- ☐ Move firewood piles as far away as possible from structure
- ☐ Cut grass or weeds
- ☐ Remove fallen fruit or nuts
- ☐ Remove fecal matter (rodents, bats, birds)
- ☐ Sanitize animal droppings
- ☐ Investigate secondary pest potential from rodent infestation (e.g. fleas, mites)

Floor Plan

Building location _____

Draw a floor plan and mark locations for repairs or pest-proofing.



Landscape Monitoring

Date 6/15

Name of Person Monitoring	
John Doe	

Describe location of appropriate category:

Ornamental beds

Fence Lines

Category	Area	Area (sq ft)	Area (sq yd)	Area (sq ft) × 0.109	Area (sq yd) × 0.109
Sport turf	Base	1,000	119.6	109	12.9
	Topsoil	1,000	119.6	109	12.9
Paved Areas	Base	1,000	119.6	109	12.9
	Topsoil	1,000	119.6	109	12.9

Ornamental turf
Trees
Northwest corner of school entrance

Playground	
Other	

[illegible]

*See accompanying charts for explanation

Landscape Monitoring

Date _____

Name of Person Monitoring

Describe location of appropriate category:

Ornamental beds

Fence Lines

Sport turf

Paved Areas

Ornamental turf

Trees

Playground _____

Other _____

[illegible]

*See accompanying charts for explanation

Indicators of Plant Condition

Plant Condition Rating	Leaf Color	Amount/Size of Growth	Damaged Plant Parts	Presence of Pest Problems
Excellent	Good	Adequate	None to few	No major ones
Good	Good	Slightly reduced	Few to Common	A few minor ones
Fair	Poor	Much reduced	Common to abundant	Either major or minor ones occurring frequently
Poor	Poor	Severely reduced	Innumerable	Both major and minor ones occurring frequently

Leaf Color: Note that there are healthy plants that do not have bright green leaves. Leaves can be purple, yellow, or sometimes a mottled yellow and green (variegated). Good leaf color will not always be the same; it will depend on the kind of plant.

Amount/Size of Growth: This refers to the length of the new growth for the season as well as the number of new leaves, and the size of the leaves, flowers, or fruit.

Damaged Plant Parts: Look at the whole plant. Are there leaves with holes, spots, or discolorations? Are there wilted or dead leaves? Are there dead twigs or branches? Is the damage only on old leaves while new leaves look perfectly healthy?

Presence of Pest Problems: A major pest problem is one that has seriously affected or injured the plant and requires management. A minor pest problem may or may not have affected or injured the plant and may or may not require management.

Pest and Plant Damage Abundance Chart

Abundance Rating Indicators of Abundance	
Few	Organisms or plant damage occasionally found, but only after much searching.
Common	Organisms or plant damage easily found during typical searching.
Abundant	Organisms or plant damage found in large numbers – obvious without searching.
Innumerable	Organisms or plant damage extremely numerous – obvious without searching.

These charts were adapted from Michigan State University Pest Management Manual

Weed Monitoring Form for Turf

Location of Turf _____ Date _____

Data Collected By _____ Length of Pace _____

Distance between sampling points of transect _____ (for example every nine paces)

Number of transects _____ Length of transects _____

Sketch of location of transects

Transect A				Transect B				Transect C			
Yes	No	Bare	Weed I.D.	Yes	No	Bare	Weed I.D.	Yes	No	Bare	Weed I.D.
1				1				1			
2				2				2			
3				3				3			
4				4				4			
5				5				5			
6				6				6			
7				7				7			
8				8				8			
9				9				9			
10				10				10			
11				11				11			
12				12				12			
13				13				13			
14				14				14			
15				15				15			
16				16				16			
17				17				17			
18				18				18			
19				19				19			
20				20				20			

Average % weed growth _____ Average % bare area _____

Total the number of boxes marked 'Yes' in each column. Multiply this number by 100 and divide by 60 (the total number of samples taken). The result is the average percentage of weeds growing in the turf area. Follow the same procedure to calculate percentage of bare area.

Roach Trap Monitoring

Building # 3 Name of Person Monitoring John Doe
 Room or Area Cafeteria

Trap #	Room # or Name	Date Trap was		Trap Missing	Location Description	Adults	Roaches Nymphs	Total
1	Kitchen	3/5	3/26		SE Drain, under gate	0	0	0
2	Kitchen	"	"		S Sink under electric box	1	1	2
3	Dishroom	"	"	yes	S under conveyor belt	-	-	-
4	Dishroom	"	"		N under conveyor belt	0	0	0
5	Storage	"	"		left side of door	0	0	0
6	Dining	"	"		W serving counter	0	2	2

EXAMPLE

6 Total # of Traps 0.66 Average # of Roaches/Traps 4 Total # of Roaches
 (Total # of Roaches divided by total # of traps)

*See accompanying charts for explanation

Roach Trap Monitoring

Building # _____

Room or Area _____

Name of Person Monitoring _____

Trap #	Room # or Name	Date Trap was		Trap Missing	Location Description	Adults	Roaches Nymphs	Total
		Set	Read					

_____ Total # of Traps

_____ Average # of Roaches/Traps
(Total # of Roaches divided by total # of traps)

_____ Total # of Roaches _____

*See accompanying charts for explanation

[illegible]

*Pesticides, caulk, traps, etc.

Pest Inspection/Sanitation Report

Date _____ Time In _____ Out _____

Building#/Location _____

Inspector _____

Inspection Type ☐ Initial ☐ Quality Control ☐ Routine

Evidence of Infestation(s)

Pest	Location(s)	Pest	Location(s)
Ants		Fleas	
Cockroaches		Stored Prod. Pests	
Mice		Pigeons	
Rats		Other	

Sanitation Survey

Food Preparation	Yes	No	Receiving	Yes	No
Equipment clean			Floors clean		
Appliance drip pans clean			Clutter		
Floors clean			Empty boxes stored in cold storage		
Floor drains clean			Empty boxes stored away from kitchen		
Sink drains clean			Student and Staff Areas		
Counters/Tables clean			Restrooms clean		
Food stored in pest-proof containers			Plumbing leaks		
Perishables stored in refrigerator			Locker room clean		
Garbage removed daily before closing			Food stored in locker room		
Spillage cleaned regularly			Teacher's lounge clean		
Standing water			Food stored properly in lounge		
Plumbing leaks			Food stored in student, staff, or teacher desks		
Windows/Door screened			Trash removed daily before closing		
Gaps around/under doors or windows			Janitorial closet clean		
Pest proofing needed			Pest Proofing needed		
Storage Areas			Exterior		
Floors clean			Dumpster/garbage cans cleaned weekly		
Floor drains clean			Dumpster/garbage cans have lids		
Food stored in pest-proof containers			Lids closed on dumpster/garbage cans		
Recyclables cleaned before storing			Garbage area downwind from kitchen		
Spillage cleaned regularly			Dumpster/Garbage area clean		
Items stored 6" to 8" off floor			Garbage removed at least weekly		
Items stored 12" to 18" away from wall			Pet waste removed daily		
Stock rotated			Loading dock clean		
Clutter			Gaps under/around doors		
Pest proofing needed			Area is trash- and weed-free		
Other			Standing water		
			Pest proofing needed		
			Outside eating area cleaned daily		
			Other		

Comments/Recommendations _____

Inspection Checklist for Detecting Structural Decay and Structural Damage

Check the following locations for structural decay and pest damage. Check both visually and by probing with a pointed tool, such as an ice pick. Look for signs of moisture, damaged wood, insect frass, and termite earthen tunnels and/or fecal pellets.

Roof, Overhangs, Gutters, Eaves, Trim, Attic

Roof Surface

Check the roof for cracks, missing shingles, and other openings where moisture might enter. Shingles should extend 3/4 inch or more beyond the edge of the roof and should form a continuous drip line at the eave and end rafters, or at the rake boards that cover the end rafters.

Remove leaves from the roof surface, and replace any missing shingles. Install flashing or an aluminum drip edge under the first course of shingles to divert rainwater from the fascia board and walls of the building.

Be careful not to block eave vents. Install flashing; it should curl over the forward edge of the fascia board about 2 inches and then run about 6 inches beyond a vertical line drawn from the inside face of the wall studs.

Check for the formation of masses of ice on the roof near the gutters, which can lead to water filtration and/or excessive condensation on interior attic walls.

Gutters

Check for poorly sloped, clogged, rotted, or leaking gutters that can lead to eave, overhang, or siding leaks and rots. Remove leaves and twigs that absorb moisture and cause rot. Flush gutters with a hose prior to the rainy season. Install downspout leaf strainers and gutter guards.

Attics

Extra effort is needed to inspect areas difficult to see or reach. Use a good light source and a probe. Search for rain seepage or decay around vent pipes, antennas, wall top plates, skylights, and other vents.

Eaves, Overhangs, and Fascia Boards

Make sure there is at least 18 inches of overhang to allow proper water runoff. Extend short overhangs. Search for soft, tunneled, cracked, or exposed areas. Check areas where algae, moss, lichens, or discoloration occurs; these symptoms may indicate moisture problems and termites.

Flashings

Make sure areas around vents, chimneys, and dormers are flush and well sealed. Rusty or broken nails can cause problems in flashings. Aluminum or galvanized nails are required to prevent electrolysis (a chemical reaction between dissimilar metals that causes the nails to disintegrate). Seal nail head and flashing joints with marine-quality caulk or silicone (tar preparations are cheapest, but they crack after a few years in the sun).

Damaged or discolored areas

Search for exposed areas that are soft, tunneled, cracked, rotted, or blistered. Check for algae, moss, lichens, or discoloration, since these areas indicate potential openings for fungi and/or insects. Locate the sources of moisture and make the necessary repairs.

Outside Walls

Rusty Nails

Check for rusty nails or nail staining, which indicates moisture within the wall and/or the use of non-galvanized nails. Replace nails with aluminum or galvanized nails or screws.

Deteriorating Paint

Look for signs of deteriorating paint such as loss of paint sheen and bubbling and peeling; scrape and sand the surface and repaint. If the wood seems soft, weak, or spongy, scrape out the spongy parts. If holes are smaller than 1/2 inch in diameter, fill them with caulk. Larger holes can be filled with epoxy wood-filler. If holes are very large, replace the wood.

Building Siding That is Stained or Buckled

Stained or buckled siding (with or without peeling paint) is a symptom of underlying moisture, rot, or insects. Check for moisture caused by splashing rain or lawn sprinklers. If possible, remove the source of the moisture and refinish or replace the damaged wood. Consider using a more durable material, such as aluminum siding. Pressure-treated woods are treated with toxic materials and their use should be minimized.

Damaged Wood Junctions

Moisture and insect problems often occur where wood pieces join or abut, particularly when there is shrinkage, splintering, or settling. Corners, edges of walls, roof-siding intersections, and siding-chimney contacts are particularly vulnerable. Apply water repellent and caulk to these joints, and monitor them regularly for building movement.

Weathering of Exposed Lumber/Beam Ends

Check for expanded, split, or cracked lumber ends, which provide access for moisture and insects. Even previously treated wood is subject to attack if the openings are deep enough. Caulk cracks and monitor for further developments.

Loose Stucco or Cracks in Stucco

Search for cracks, especially stress cracks around windows and doors. These conditions can provide access to moisture, termites, and decay organisms. Caulk cracks. If they are large, consider replacing the old stucco.

Moisture Accumulation around Laundry Facilities, Especially Dryer Vents

Check for signs of moisture accumulation around the vent. Modify the vent to direct exhaust air away from the building.

Moisture Associated with Pipes and Ducts

Check for moisture where ducts pass through wooden parts of a building. Also, check downspouts during heavy rains for leakage and proper drainage. Insulate ducts, install splashguards below downspouts, repair the spouts, and direct water away from buildings.

Moist Window Sills, Windows, or Doors

Check for cracked sills and casings, and poorly fitted windows and doors. Badly fitted doors may indicate warping of the door or its casing from excessive moisture or uneven house settling. Moisture problems can alter door jambs. Warped and cracked sills and poorly fitted windows and doors allow water access which aids decay and provides initial insect habitat.

Caulk cracks and monitor for further development. Warped door thresholds and jambs may need replacement, and casings may need repair if the cracks are too large to caulk effectively.

Foundation and Grade

Soil Surface

Make sure the soil surface slopes away from the school building in order to carry water away from the foundation. Seepage under the foundation will cause it to crack and settle. Add fill to direct the water away from the house but make sure there is at least 8 inches between the top of the fill and

the sill. If clearance is small, consider installing foundation “gutters”. Install splash blocks and perforated pipe. Check their performance during rains or test the system with a hose. A sump pump can also be used to move water away from the foundation.

Low Foundation Walls and Footings Allowing Wood-to-Soil Contacts

Check for wood in contact with the soil. Wood should be at least 8 inches, and preferably more, above the soil surface. Low foundation walls or footings often permit wooden structural members to be exposed to the soil, providing access for subterranean termites. Repair these areas or install subgrade concrete “gutters” where the house sills sit too close to ground level. Remove wood that is exposed to the soil and replace it with concrete.

Foundation Cracks

Check for cracks that allow decay organisms access to wood. Cracking may also indicate uneven house settling. Monitor cracked walls for discoloration and seepage during rains. Termites use cracks to gain access to wood hidden from view. If the problem is serious, the foundation may need repair.

Brick Veneer or Stucco Applied to the Foundation

Check the bond between the veneer or stucco and the foundation wall. If it is failing, moisture and termites may have a hidden entrance to wooden portions of the building. Remove the loose covering and explore the extent of the decay.

Crawl Space, Basement, and Foundation

Make sure enclosed crawl spaces are vented to allow moist air to escape. Milder climates are especially vulnerable to dry-rot fungus. In humid climates, the subfloor can be wet from condensation from interior air-conditioning. Shrubbery or other obstacles that block airflow through foundation vents cause air underneath the house to stay warm and moist—an ideal environment for termites.

Clean existing vents of dust, plants, and debris. Foundation vent openings should equal 2 ft² of opening for each 25 linear feet of outside wall. An opening should occur within 5 feet of each corner. Add more vents if needed. The top edge of the concrete under all vents should be at least 6 inches above the finished grade to allow sufficient ventilation. Vents located below grade may require wells to prevent surface water from entering subfloor and basement areas. Divert roof drainage away from vents.

Corners of the Building

Check for moisture accumulation and stains at junctions of wood surfaces in these areas. Install additional cellar or crawl space vents.

Enclosed Areas

Check for proper ventilation under staircases, porches, and other enclosed areas, since these are vulnerable to moisture accumulation. Look for decayed, discolored, or stained areas. Adjust or add venting.

Vapor Barriers

Check for condensation on the subfloor and/or sill, which may indicate the need for vapor barriers on the subfloor and on the soil surface in the crawl space. Such barriers can be installed to reduce the moisture resulting from poor soil grading, unexpected seepage, or high rainfall.

Cover the crawl space soil surface with a 6-mil polyethylene vapor barrier. Use polyethylene, not roofing paper, which can rot. A slurry of concrete can be placed over the plastic to protect it from rodents. Where condensation continues, consider installing extra vents or electric-powered vents whose fans and openings are operated automatically. A sump pump can be installed to remove standing water.

Wood-to-Stone or Wood-to-Concrete Contacts

Check to see whether the wood is pressure-treated (look for perforation marks from the chemical injection on the surface of the wood). Replace untreated wood with rot-resistant or pressure-treated wood. Be sure sealing material is used between the wood and stone or concrete, and place a metal washer between posts and footings.

Leaky Pipes or Faucets

Even small leaks keep the wood or soil underneath continuously moist, thereby setting up ideal conditions for termites. Areas where rain splashes on walls should be protected with rain guards. Do not allow sprinklers to spray the side of the building. Fix all leaks, and change irrigation practices where necessary.

Water- or Space-Heating Units

Check to see whether the heating unit is insulated. If the soil near the flame is kept warm throughout the year due to lack of insulation, microbial and insect development will be accelerated. Insulate the heater and cover the soil with concrete.

Paper Collars around Pipes

Since paper is almost pure cellulose, it is extremely attractive to termites and should be removed and replaced with other insulating materials not capable of being eaten by termites.

Miscellaneous Openings

Meter boxes, bathroom inspection doors, pet doors or openings, milk delivery doors, and air exhaust vents should be checked for water access, cracks, termite pellets, and soft areas.

External Areas

Porches

Check for wooden steps touching the soil, and inspect for possible decay or termite access. The porch surface must slope away from the building to carry rain away quickly. If the porch does not slope away from the building, check siding for moisture and termites. Tongue-and-groove flooring is a water trap. If there is a space between the porch and the building, check for drainage problems. Caulk and repair cracks. Fill spaces between tongue-and-groove floorboards with caulk or resurface and refinish with wood-sealing compounds and appropriate paint. Another floor can be placed over the first.

Earth-Filled Porches

Soil should be at least 8 inches, (optimally 12 to 18 inches) below the level of any wooden members. Remove the excess soil where possible, regrade to enhance drainage and redesign the porch to eliminate earth/wood contact.

Planter Boxes

Check planter boxes that are built against the building. If they are in direct contact with the building, they allow direct termite access to unprotected veneer, siding, or cracked stucco. One remedy is adding 2 to 3 inches of protective concrete wall between the planter and the building. An air space several inches wide must separate the planter wall from the building and must be kept free of dirt or other debris.

Trellises and Fences

Check for wooden portions of the trellis that touch the soil and are connected to the house, since they provide a direct link to the house for wood-rot and termites. Check fence stringers and posts for decay. Cut off the decay and install a concrete footing for trellises and fence posts. Replace

decayed stringers and leave a small gap between the stringers to allow air circulation. Separate wood and concrete with metal washers.

Wooden Forms around Drains

These are sometimes left in place after the concrete foundation is poured and provide termites with access routes to inner walls. Areas and joints around pipes rising from slabs should be sealed with tar or other adhesive to prevent water and termite access. Caulk the holes and monitor them for decay and excess moisture.

Gate Posts, Fence Tie-ins, Abutments and Columns

Inspect these for weakness and rot especially around areas adjacent to the soil. Exposed areas can provide cracks for termite invasion. If wooden posts go through concrete into the soil below, check the posts for evidence of termite attack. The bottoms of these posts should be cut and replaced with a concrete footing. Cut post tops at an angle to promote runoff and prevent water from penetrating the vulnerable end grain.

Balconies and Landings

Surfaces should be sloped away from the building. Check junction of floor and siding for moisture and insects.

Wood Debris under and around Buildings

Pieces of wood, particularly partially buried tree roots or construction lumber, can help support a termite colony until the population grows large enough to attack the house itself. Since cardboard boxes are very attractive to termites, they should be removed from crawl spaces or basements with earthen floors.

Interior Locations

Areas with water stains or mold growth indicate excessive moisture and should be analyzed for corrective action. Pay special attention to areas listed below.

Kitchen Pipes

Look for condensation and leaks, especially where pipes enter walls. Repair leaks and insulate pipes where condensation is excessive.

Counter Areas

Check around and below sink surfaces for moisture and decay. Caulk or otherwise protect wall surfaces from moisture. Subsurface areas damaged by water leaking from above may be tolerated if the surface leaks are repaired.

Exhaust Vents

Check for moisture leaks from outside. Repair with caulk or water-resistant sealing material, or replace the vent and the rotted wood around it. Use extra flashing to fill the gap.

Toilets

Check the integrity of the floor around each toilet base by thumping lightly with a hammer. Check the wax seal for leakage at the floor/toilet pedestal intersection. Check the cellar or crawl space beneath the toilets to see whether the leakage has caused damage. Replace the wax seal if necessary and repair the surrounding water damage.

Showers and Sinks

Check all sinks and showers for a sound caulk seal. Look for splash over on the floors from inadequate water barriers or user carelessness. If moisture is visible from crawl spaces, it may indicate a

crack in the floor or in drainage pipes. If moisture is visible in the ceiling, it may indicate cracks in the delivery pipes.

Repair or replace flooring materials, pipes, drains, or sink basins if necessary. Sealing compounds may be useful when leaks are relatively recent and small, especially if termites have not been found; however, regular monitoring is necessary if sealing materials are used.

Tile Walls

Check for mildew stains. Make sure the grout in tile walls has a silicone coating to prevent water penetration. Clean the walls regularly to remove mildew and improve ventilation.

Ceilings

Check for blistered areas, since these can indicate moisture leaks in the area above or inadequate installation of a vapor barrier. Repair leaks and faulty vapor barriers.

Windows

Check for moisture accumulation and/or water stains on window frames and walls. Search for evidence of decay or insect attack next to glass areas where condensation accumulates, at edges where moldings meet walls and casings, and in window channels and door jams. Gaps between window and door casings may be avenues for hidden moisture and insect access. Check interior walls beneath windows, especially if they are regularly wetted by garden sprinklers.

Open windows when feasible to improve air circulation. Install double- or triple-glazed windows when replacement is necessary. Use aluminum frames if wooden frames are decaying. Adjust or move sprinklers so water does not hit windows.

Closets

Check coat and storage closets for dampness. A light bulb left burning continuously in a damp closet will often generate enough heat to dry it out, but make sure the bulb is far enough away from stored materials to avoid creating a fire hazard. Containers of highly absorbent silica gel, activated alumina, or calcium chloride also remove moisture from the air in enclosed spaces. These agents should be placed out-of-reach to avoid accidental exposures. Avoid use of silica gel where children may tamper with the containers. These chemicals can be reused after drying them in the oven. Small exhaust fans can also improve closet ventilation.

Floors

Sagging or buckling floors can indicate shrinkage or rot from excessive condensation or water leaks. Gaps between floor and baseboards can indicate wood damage from insects, fungi, or water-triggered swelling and shrinkage.

Training and Licensing Opportunities

A variety of pest management licensing and training opportunities exist in California. The following organizations can provide information about licensing and/or training:

- The Department of Pesticide Regulation regulates pesticide use and sales and fosters reduced-risk pest management. For information about any of DPR's programs phone 916-324-4100 or see the Web site at www.cdpr.ca.gov.
 - Licensing: DPR is responsible for examining and licensing qualified pesticide applicators, and for certifying pesticide applicators who use or supervise the use of restricted use pesticides. See the Licensing and Certification Program Web page at www.cdpr.ca.gov. DPR's licenses focus primarily on agricultural uses although maintenance gardeners are licensed by DPR.
 - Training: DPR has a list of all approved continuing education classes on the Web site that are frequently updated. Go to www.cdpr.ca.gov and click on either the Licensing and Certification Program link or the School IPM page link.
- The Structural Pest Control Board licenses businesses and individuals to perform control of structural pests. They also offer training. Contact them at 916-561-8700 or online at <http://www.pestboard.ca.gov/index.html>.
- Local community colleges: See the local yellow pages or go to <http://www.cccco.edu/> for more information.
- California State University: Visit the Extended University homepage at <http://www.gateway.calstate.edu/extension/index.shtml> for details.
- UC IPM's Pesticide Safety Education Program. This develops, tests, evaluates, and disseminates pesticide safety education models and materials in order to promote the safest and most effective use of pesticides. See <http://www.ipm.ucdavis.edu/GENERAL/pesticides.html> for details and up-to-date class listings or call (530) 752-5273.
- UC Extension: Each campus of the University of California offers continuing education courses. Go to <http://www.ucop.edu/unex/> for more information.
- Many professional associations include IPM training at annual meetings or hold separate IPM training sessions.

For more information about local IPM training, contact the County Office of Agriculture or the county office of the University of California Cooperative Extension.

Pesticide Safety Information Series N

Pesticide Safety *Information*

Worker Health and Safety Branch

Series N

N-1 SAFETY REQUIREMENTS FOR PESTICIDE HANDLERS In NonCrop Settings

This leaflet explains pesticide safety guidelines and requirements for: employees handling pesticides in industrial/institutional settings and employees of structural pest control operators, landscape and maintenance firms, rights-of-way maintenance companies, and similar businesses. The following information will help build the framework for a safe working environment. The term "handle" refers to any activity related to the application of pesticides

Hazards of Pesticides:

Before a pesticide is sold, many tests are conducted to determine the possible health and environmental hazards. Pesticides (and other chemicals) can be absorbed through your skin and into your body to cause illness. Hand exposure contributes significantly to the overall hazard of handling pesticides. Protection of the skin is often the most difficult problem associated with pesticide use.

Labeling and Regulations:

Federal laws require specific precautions to be on pesticide labels to protect your health. In addition, every label must display a signal word that gives an indication of the relative acute health hazard. The signal words are:

- "Danger" indicates the pesticide is extremely toxic
- "Warning" indicates moderate toxicity
- "Caution" indicates low toxicity.

Federal and State laws require that pesticides be used according to the requirements on the label. Additionally, the State establishes its own regulations. In some cases, State regulations are more strict than Federal laws; they protect you in some use conditions specific to California. Follow both pesticide labels and State regulations. In case of a conflict, follow the more strict requirement.

Exemptions: When medical sterilants, pool and spa chemicals or antimicrobial agents used as sanitizers or disinfectants are handled, the employer is exempt from complying with provisions of the worker safety regulations (Title 3, subchapter 3) provided any applicable provisions

of Title 8 (Cal/OSHA regulations) are followed. You must still follow the requirements on the pesticide label.

Interpretation of Label Safety Precautions:

Interpret the safety precautions on the label carefully. Take into account the signal word and the application situation. If the label says to avoid breathing spray mist, a respirator should be worn to protect you from inhalation hazards. Hazardous conditions may occur indoors where there is little or no air movement. In addition, people in the same building (but not in the treated area) may be exposed because the ventilation system carries the pesticides or vapors around the building. Assess the whole situation prior to handling pesticides.

Use of engineering controls, such as closed systems and water soluble packaging, are always preferred over the use of personal protective equipment (PPE), such as a respirator, rainsuit, etc. In some situations, if engineering controls are used, handlers can wear less PPE. Substitutions allowed when engineering controls are used are found in Pesticide Safety Information Series (PSIS) N-3, Table 1.

Hand pouring and moving (transporting) pesticide concentrates presents the greatest hazard to the people involved. After a pesticide is mixed and loaded into the application equipment to be applied as a dilute liquid spray, the hazards decrease a little. However, even when using the dilute solution, the applicator should always try to avoid getting wet with the spray regardless of the signal word on the label.

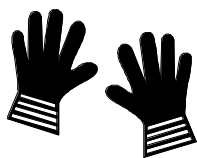
Specific Safety Precautions to Follow in California:

- Eye protection is required for most activities involving mixing/loading, application and equipment maintenance. Some exemptions exist for some application of vertebrate baits or solid fumigants and applying non-insecticidal lures.
- Protective eyewear can be safety glasses (with brow and temple protection), a face shield, goggles, or full

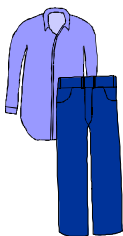


face mask (part of respiratory protection). Regular eyeglasses and sunglasses DO NOT provide adequate protection.

- Employees involved in the mixing and loading of pesticides, pesticide equipment maintenance and hand application (including hand-held equipment) of pesticides must be provided with and use gloves.

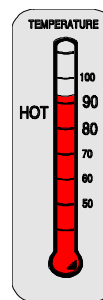


- Your employer must provide clean or new gloves each day.
- If the type of glove needed is not on the label, you must use gloves made of rubber, neoprene or other chemical-resistant material.
- If the label specifically states that the handler should not use gloves, they must not be worn.
- Wear respiratory protection when using pesticides that are toxic when inhaled, such as fumigants, powders, dusts, or some liquids.
- The type of respiratory protection required will be on the pesticide label.
- Some medical conditions, such as heart and lung disease, may prevent you from using respiratory protection. If you have these conditions, a physician must examine you prior to using respirators.
- Your employer must have a written procedure for selecting, fitting, cleaning, sanitizing and maintaining respiratory equipment. See PSIS N-5 for additional information on respiratory protection.
- If you handle pesticides with the signal word "DANGER" or "WARNING" on the label, your employer must provide you with clean coveralls (a one- or two-piece garment with long-sleeves and long pants) every day these pesticides are used. (This does not apply to those who handle fumigants, unless the label specifically requires use of coveralls.)
- If the pesticide label or California regulations require the use of chemical resistant protection, your employer must provide a clean chemical-resistant suit, apron (if specified), footwear and headgear, that covers the body, feet and head.



- Due to the high temperatures that often exist in California, heat stress from use of chemical resistant clothing may be a greater hazard than pesticide exposure. In the absence of engineering controls applications should be made at night or during the cooler portions of the day when protective equipment can be tolerated.

- If required to use a chemical resistant suit, you must not work in temperatures above 80°F in daylight hours or above 85° during nighttime hours, unless wearing a cooled suit. Some exemptions from the chemical resistant clothing requirements exist for handlers (see PSIS N-3, Table 1).



- Your employer must provide a place to change clothes and wash at the end of the workday if you handle pesticides with the signal word "Danger" or "Warning".

Training

California regulations require you to be adequately trained before you handle pesticides. Your employer must have a written training program for employees who handle pesticides. The training must include for each pesticide or chemical group of pesticides:

- the meaning of precautionary statements on the pesticide label;
- information on the immediate and long-term hazards of the pesticides to be used;
- routes pesticides can enter the body;
- signs and symptoms of poisoning;
- emergency first aid;
- how to obtain emergency medical care;
- routine and emergency decontamination procedures;
- need for, limitations, use and cleaning of PPE;
- prevention, symptoms and first aid for heat-related illness;
- safety requirements and procedures;
- environmental concerns;
- instructions not to take pesticides or pesticide containers home;
- applicable regulations, Material Safety Data Sheets (MSDS), and PSIS leaflets;
- location of the written Hazard Communication information (PSIS N-8); and
- your rights as an employee.

This leaflet assists readers in understanding pesticide regulations. It is not a legal document. The legal reference can be found in the California Code of Regulations, Title 3. The words "must" and "should" used in the text are not the same. The word "must" means the action is required and comes from California regulations. The word "should" means additional handling practices that are recommended to further reduce exposure.

Pesticide Safety *Information*

Worker Health and Safety Branch

Series N

N-2

STORAGE, TRANSPORTATION AND DISPOSAL In Noncrop Settings

General Information:

This leaflet describes general methods and requirements for proper storage, transportation, and disposal of pesticides and containers. The following simple precautions will drastically reduce the number of accidental pesticide poisonings, especially those involving children.

- Keep pesticides in their original containers.
- Never put pesticides in containers used for food, drink, or household products.
- DO NOT take home or use around your home any pesticide you use at work.



Storage:

Properly store or keep pesticides and empty containers under direct personal control at all times. Direct personal control means a responsible person who can prevent contact by unauthorized persons. A responsible person must have the pesticide(s) in sight, if under direct personal control and adjacent to a road or populated area. Acceptable pesticide storage includes:

- a locked, fenced area
- a lockable storage compartment
- a locked truck or trailer with side racks (the tops of the racks should be a minimum of six feet above the ground).

Keep storage areas clean, dry, ventilated and adequately lighted. Read and follow storage requirements explained on the label. If pesticides are stored with fertilizers, keep the two separated. Pesticides and fertilizers might react chemically and result in a fire. Do not store pesticides near food,

animal feed or personal protective equipment because of possible contamination.

Your employer may need a hazardous waste facility permit, if he/she stores pesticide waste, such as old products or unrinsed containers. For more information about specific requirements, contact the California Environmental Protection Agency (Cal/EPA), Department of Toxic Substances Control. The telephone number can be found in the Government Pages of your telephone book.

Storage Posting Requirements. Post warning signs on all storage areas containing pesticides (or empty containers) with the signal words "DANGER" or "WARNING" on the label. Post signs on all directions of possible approach. You must be able to read the sign from 25 feet away. These signs must state:

DANGER
POISON STORAGE AREA
ALL UNAUTHORIZED PERSONS KEEP OUT
KEEP DOOR LOCKED WHEN NOT IN USE

Transportation:

To transport pesticides safely you must follow these simple procedures:

- Do not transport pesticides in the same compartment with a person, food, or animal feed.
- Transport pesticides in a secure upright position.
- Tightly close containers to prevent spillage.
- All containers must be labeled.
- This labeling must be the original product labeling or service container labeling.
- Service container labeling requires the name and address of the person responsible for the container, the common name of the pesticide and the signal word from the original label.

There may be other regulations to follow when transporting hazardous materials. As a general rule, consult the California Highway Patrol, Motor Carrier Safety Unit when transporting more pesticides than you will use in a few days. Their telephone number can be found in the Government Pages of your telephone book.

Rinsing:

All containers under 28 gallons, must be rinsed at the time of use, unless they are returned to the registrant or the pesticide is not diluted during use. There are two rinsing procedures. Follow one of them to ensure you have properly rinsed containers.

Procedure #1:

1. For containers smaller than 5 gallons, use enough water to fill the container $\frac{1}{4}$ full. For larger containers, use enough water to fill it one-fifth full.
2. Put the appropriate amount of water into the container. Close the container securely and agitate.
3. Drain the solution into the mix tank. Allow the container to empty completely.
4. Repeat steps 1 - 3 a minimum of 2 more times.

Procedure #2:

1. Turn the empty container over and place the opening over a nozzle. This nozzle must be located in the opening of the mix tank so the liquid will drain into the tank. The nozzle must be able to rinse all inner surfaces of the container.
2. Turn the nozzle on and rinse until the water coming from the container is clear. Use a minimum of $\frac{1}{2}$ the container volume of water.

You may use other rinsing procedures, if they have been approved by the Department of Pesticide Regulation.

Disposal:

Dispose of all empty pesticide containers in a manner approved by the Cal/EPA, Department of Toxic Substances Control. Take all glass, plastic, or metal containers to an approved disposal site. DO NOT BURY ANY PESTICIDE CONTAINER.



For information on local requirements, contact the local agricultural commissioner. In many counties, people must possess a permit or certificate issued by the commissioner to dispose of rinsed containers.

Exemptions:

The above procedures are not required for sanitizers, disinfectants, medical sterilants or pool or spa chemicals.

This leaflet assists readers in understanding pesticide regulations. It is not a legal document. The legal reference is in the California Code of Regulations, Title 3. The words "must" and "should" used in the text are not the same. The word "must" means the action is required and comes from California regulations. The word "should" means additional handling practices that are recommended to further reduce exposure.

Pesticide Safety *Information*

Worker Health and Safety Branch

Series N

N-3 ENGINEERING CONTROLS (Closed Systems, Enclosed Cabs, Water Soluble Packaging) In Noncrop Settings

General Information:

Engineering controls are methods used to reduce exposure (closed system, enclosed cabs, water soluble packaging, etc.) other than personal protective equipment (respirators, gloves, etc.). Engineering controls are preferred over personal protective equipment (PPE) for reducing exposure. Hand-pouring highly toxic pesticides is a very hazardous activity, and has resulted in many serious human illnesses and injuries. Many more pesticide-related illnesses and injuries resulted from unprotected persons applying toxic pesticides. Proper use of engineering controls reduces the potential for human exposure. On the other hand, improper use, cleaning or maintenance of these systems can also lead to excess exposure. In many instances, substitution of PPE required by label or California regulation is allowed when properly using some engineering controls (see Table 1).

Closed Systems:

The closed system requirement applies primarily to use of pesticides in agricultural settings. However, handlers must use a closed system to mix and load minimal exposure pesticides (MEP), regardless of the intended use. Even if not required, proper use of a closed system can reduce mixer/loader exposure.

A "closed system" is a procedure for removing a pesticide from its original container, rinsing the emptied container, and transferring the pesticide and rinse solution through connecting hoses, pipes and couplings that are sufficiently tight to prevent exposure of any person to the pesticide or rinse solution. No rinsing is required when:

- the pesticide is used without dilution
- the container is a returnable or reusable container that will be sent back to the registrant

If you use a closed system, you must receive training on the proper use and necessary safety precautions during use.

You must wear PPE as required by the label or California regulations. Some substitutions for label-required PPE are allowed when using a closed system (Table 1). All PPE required by the pesticide label must be present at the work site for emergency use. Eye protection and gloves are still required in some instances when using a closed system (see Table 1 for exemptions).

California's Closed System Criteria: To meet California's requirements, a closed system must:

- remove the pesticide from the original container
- rinse the container
- transfer the pesticide to the mix tank
- be made of materials appropriate for use with pesticides and a pressurized system
- have gauges protected against breakage
- adequately measure the pesticide used
- have shut-off valves to prevent chemical from spilling when the hose is disconnected.

Do not remove the probe from the container unless the container is empty and rinsed, the pesticide was used undiluted and the container is empty or the probe has been approved for removal from partially empty containers. The system must have shut-off valves to prevent chemical from spilling when the hose is disconnected or removed. For more details on closed system criteria, contact the California Environmental Protection Agency, Department of Pesticide Regulation (DPR). You may obtain a list of closed systems that have been evaluated and found to meet these criteria from DPR ((916) 445-3920).

The system must be cleaned and maintained according to the manufacturer's instructions. If the system is not a commercially produced system, it must be maintained on a regular basis. A record of cleaning and maintenance must be kept.

Water Soluble Packaging:

Use of pesticides in water soluble packaging (WSP) is considered equivalent to mixing with a closed system. However, dilutions of MEPs in WSP must be transferred (i.e., from a mix tank to the application vehicle tank) via a closed system. DO NOT cut open WSP to use a partial package. This invalidates the closed system equivalency and puts you at risk of over exposure.

Enclosed Cabs:

Proper use of enclosed cabs reduce exposure of some applicators. An enclosed cab is a chemical resistant barrier that completely surrounds the occupant of the cab and prevents contact with

pesticides or treated surfaces outside the cab. Enclosed cabs can include a closed cab on a spray rig or a truck or car with the windows and doors closed. There are two types of enclosed cabs:

- Cabs that have only the physical barriers (doors, windows, etc.) to prevent exposure
- Cabs acceptable for respiratory protection. The latter cab incorporates a dust/mist filtering and/or vapor/gas purification system in addition to the physical barrier. These cabs must meet certain criteria and be approved by the director of the DPR.

This leaflet assists readers in understanding pesticide regulations. It is not a legal document. The legal reference can be found in the California Code of Regulations, Title 3. The words "must" and "should" used in the text are not the same. The word "must" means the action is required and comes from California regulations. The word "should" means additional handling practices that are recommended to further reduce exposure.

Table 1: Allowed Substitutions for PPE When Using Engineering Controls

When using the following:	Handlers may substitute:*	For the following:
Closed system for pesticides with "Danger" or "Warning"	Coveralls, chemical resistant gloves and chemical resistant apron	PPE required on the pesticide labeling
Closed system for pesticides with "Caution"	Work clothing	PPE required on the pesticide labeling
Closed system under positive pressure	Protective eyewear**	
Mixing pesticides in water soluble packets	Use in water soluble packets***	Use of a closed mixing system
Enclosed cab	Work clothing and required respiratory protection	PPE required on the pesticide labeling
Enclosed cab acceptable for respiratory protection	Work clothing	PPE required on the pesticide labeling
Any pesticide	Chemical resistant suit	Coveralls and a chemical resistant apron

* For any substitution, all PPE required by the label must be available in case of an emergency

** When using a pressurized system, protective eyewear is required in addition to coveralls, chemical resistant gloves and apron for pesticides with "Danger" or "Warning" or in addition to work clothing for pesticides with "Caution" on the label

*** Using pesticides in water soluble packets is equivalent to mixing with a closed system. However, transfer from mix tank to application tank must be made with closed transfer equipment.

Pesticide Safety *Information*

Worker Health and Safety Branch

Series N

N-4

FIRST AID AND DECONTAMINATION For Noncrop Settings

This leaflet provides basic first aid for employees who handle pesticides. The information supplements first aid statements found on pesticide labels. This leaflet **does not** meet the employer's requirement for emergency medical care nor for making prior arrangements for emergency medical care.

Illness While Working With Pesticides:

If you become ill while working with pesticides, stop work immediately. Notify your supervisor or a fellow employee that you are ill. Take the following steps to eliminate any source of continued pesticide exposure:

- Go to a source of fresh air.
- Remove work clothing.
- Shower completely, wash your hair, and change into clean clothing.
- DO NOT put contaminated clothing back on until they are properly washed
- If shower facilities are not immediately available, use the closest available clean water source to wash your body. This may be water from a shower, faucet or hose, or bottle.

In all cases: **DON'T WAIT - DECONTAMINATE IMMEDIATELY.** Take the ill or injured person to the nearest emergency medical care facility. Do not leave the person alone or allow them to drive.



If a person collapses while working with pesticides:

- immediately remove that person from the pesticide use area
- give the necessary resuscitation
- call 911 for emergency help, if a telephone is available
- warn emergency workers that the person may be contaminated with pesticides

REMEMBER: A sudden collapse may be due to a heart attack or other medical emergency not related to pesticide exposure.

All persons should receive cardiopulmonary resuscitation (CPR) training. The American Red Cross and the American Heart Association teach CPR. Contact the local chapter of either of these organizations to make arrangements for training individuals or groups.

It is very helpful and important to supply the physician or emergency room personnel with as much information as possible regarding the circumstances of exposure. Provide the physician with the name of the pesticide the victim was exposed to or handling. If possible, take a clean copy of the product label(s) to the physician with the victim. If a label cannot be taken in with the victim, write down the exact name of the product, EPA registration number and active ingredients and give it to the physician. As a last resort, take a clean, empty, labeled container or a sealed, labeled container to the physician along with the victim. (Exposure of emergency care or hospital personnel can occur if a container with pesticides is dropped and broken.)

Sudden Contamination With Pesticides:

Pesticides can be absorbed into the body by:

- breathing in dust or vapors
- skin or eye contact
- swallowing.

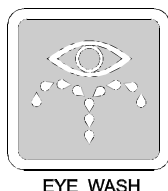
Breathing Dust or Vapors. In the event of a sudden, unexpected release of pesticide dust or vapor into the air:

- leave the area.
- if in an open area, go upwind at least 100 feet away from the dust or vapor.
- if indoors or in a confined area, leave the area immediately and go outdoors or to a well-ventilated area away from the dust or vapor.
- immediately move any person overcome by dust or vapors to an area away from the pesticides.

- proceed as described for persons who collapse while working with pesticides.

Pesticides In the Eyes.

- Immediately rinse the eyes with water.
- Hold the eyelids open and slowly pour water over the eyes.
- Never use a forceful stream of water directed into the eye as damage may occur. Use water flowing slowly and gently from a faucet or hose.
- Rinse the eye for at least 15 minutes.
- If symptoms of pain, discomfort, or visual problems are present after thoroughly rinsing the eyes, immediately take the affected person to the nearest emergency medical care facility.



Pesticides Spilled On the Clothing or Skin. Your skin is **not** an absolute barrier that prevents pesticides from getting into your body. Pesticides (and other chemicals) can be absorbed through your skin and into your body. Absorption of some chemicals is very rapid, while absorption of others is slow. It is important to remove any pesticide that comes into contact with the body whether on your skin or clothing. Many pesticides can eventually penetrate protective clothing, even if it is waterproof. All persons should remember the following procedures:

- Immediately remove all contaminated clothing.
- Wash all exposed skin areas with soap and water. If available, shower and wash your hair.
- Use any available clean source of water as discussed earlier.
- DO NOT WAIT -- DECONTAMINATE!
- Put on clean clothing.
- Properly wash contaminated clothing before wearing them again.
- If illness symptoms occur following a spill of pesticides onto the clothing or skin, immediately take the affected person to the nearest emergency medical care facility.

If the spill occurs indoors, warn other people in the area. Evacuate the area, if necessary. If the spill is small and materials are available, contain it with an absorbent, such as clay, saw dust or kitty litter. Do

not attempt to clean any spill without proper protective equipment. Be sure to contact your supervisor or the person in charge of the building.

Pesticides Are Swallowed.

- The victim should drink sips of water or milk.
- Do **NOT** give fluids to an unconscious or semi-alert person.
- Call 911, a physician or the poison control center.
- **Check the pesticide label.**
- Some pesticide labels advise you **not** to make the person vomit. Vomiting after swallowing caustic chemicals may make the condition worse.
- Do **NOT** induce vomiting in an unconscious or semi-alert person.
- Immediately take such individuals to the nearest emergency medical care facility.
- To induce vomiting in an adult, give one ounce of syrup of ipecac, if immediately available. To induce vomiting in children, proportionately reduce the dose of ipecac syrup (2 to 4 teaspoonfuls). After giving syrup of ipecac, vomiting is usually delayed by 15 to 30 minutes.
- Do **NOT** administer salt water or mustard solutions to induce vomiting as may be recommended on some old pesticide labels. Salt and mustard solutions may be dangerous to use for this purpose.



REMEMBER: It is important to supply the physician or emergency room personnel with as much information as possible regarding the circumstances under which the victim became ill.

Additional Useful Information:

Your employer must post at the work site the telephone number, address and physical location of the facility where emergency care is available.

Many areas are served by regional poison control centers; you can contact any poison control center in California by calling 1-800-764-7661. Immediate contact with the regional poison control center will provide professional guidance on how to proceed with first aid and resuscitation measures.

Pesticide Safety *Information*

Worker Health and Safety Branch

Series N

N-5

RESPIRATORY PROTECTION In Noncrop Settings

General Information:

This leaflet provides basic information to pesticide users on respiratory protection and helps you to comply with California's respiratory protection regulations (Title 3 California Code of Regulations section 6738).

Regulations require employers to have a written respiratory protection program at the work place. The program must cover selection, fitting, use, inspection, maintenance and cleaning of respirators. Adoption of the content of this Pesticide Safety Information Series (PSIS) leaflet meets the minimum requirements for the written program. Appendix 1 provides a sample written program.

Conditions Requiring Respiratory Protection:

Engineering controls are the best way to control airborne hazards. Examples of engineering controls are enclosure or confinement of the operation generating the hazard, ventilation to keep the airborne concentration below accepted levels, or substitution of less toxic materials. In some situations, the use of engineering controls, such as closed systems may exempt the worker from wearing respiratory protection (PSIS N-3 discusses these exemptions). Often, pesticide use creates a hazardous working environment. If hazardous pesticide concentrations cannot be controlled in other ways, you need to use personal respiratory protection. You may also need respiratory protection in emergency situations where the exposure is relatively brief.

Federal and state laws require pesticide labels to contain safety precautions. The label will include requirements for respiratory protection, if needed. If you are exposed to mist or spray, respiratory protection may be necessary when applying products

with labels that only state "avoid spray." Always read and follow the safety information on the pesticide label.

Your employer must provide required personal respiratory equipment and you must use the equipment provided. The National Institute for Occupational Safety and Health must approve the respiratory equipment for that particular use.

Training:

You must receive training initially and annually in the need, use, sanitary care, and limitations of the respiratory equipment you may have to use.

Selection and Fitting of Respirators:

Proper respirator selection is critical. Pesticide labels are the primary source of information on the type of respiratory protection necessary. With this information, a safety equipment supplier will be able to provide the correct respiratory equipment. When exposed to pesticides that irritate the eyes, nose or throat, wear a full-face respirator to also protect your eyes. If using air-purifying respirators, NIOSH must approve the air-purifying element (filter or cartridge) for use against the specific hazard. For additional help in the selection process, consult one of the sources listed below.



Respirators come in different sizes to accommodate different sized faces. Every respirator wearer must receive training on fitting and testing respiratory equipment. When fitting a respirator, wear the respiratory equipment in normal, uncontaminated air to become accustomed to it. Then wear it in a test atmosphere.

Maintenance and Sanitation:

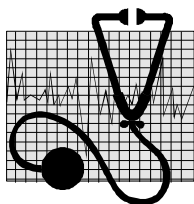
Your employer must repair or replace respiratory equipment as necessary due to wear and deterioration. A trained person should regularly clean and inspect frequently used respirators. Regular cleaning and inspection prolongs the useful life and assures the wearer that the respirator is working as efficiently as possible. For personal hygiene and communicable disease considerations, do not pass respirators from one individual to another without cleaning and sanitizing. Avoid this situation by assigning a respirator to each wearer.

When not in use, store respirators so the facepiece does not become deformed and is protected from excessive exposure to dust, sunlight, extreme temperatures, moisture or damaging chemicals. Any or all of the above will severely limit the useful life of the respirator. Plastic containers with lids can provide adequate storage for respirators.

Prior to use, inspect respirators maintained for emergency situations, such as canister gas masks and self-contained breathing apparatus (SCBA). If not used within a month, inspect and test this emergency equipment to assure reliable operation when needed. During an inspection, look to ensure cleanliness and that all components are present and operable.

Medical Evaluation:

Breathing through a respirator may require more effort than normal breathing. For some individuals, this effort is extremely difficult for various reasons. If required to wear a respirator, your employer must inform you that some medical limitations may interfere with use of respiratory protection. Some of those medical limitations include high blood pressure, heart disease, lung disease or a perforated ear drum. If you have such a condition, a physician must examine you to determine if you are physically able to perform assigned work while using respiratory equipment. The physician should determine what health and physical conditions are pertinent. Your employer must follow the physician's written recommendation concerning your



capability to wear respiratory equipment. Your employer must keep written evidence on file that you were informed. A record of the physician's evaluation must be on file for each employee who indicates a possible medical limitation before that employee performs any work that requires respiratory protection.

Limitations of Respiratory Equipment:

Respirators have limitations. They cannot adequately protect a person from all contaminants under all conditions. The protection factor measures the protection provided to the wearer and indicates the efficiency of the respirator in reducing airborne contaminants inhaled. In general, if properly fitted and worn, the typical half-face air-purifying respirator provides a protection factor of 10. A full-face air-purifying respirator provides a protection factor of 50.

The cartridges or canisters of air-purifying respirators have a limited capacity to protect against toxic gases and vapors in the air. Theoretically, cartridges and canisters are effective against toxic vapors and gases until their capacity is exhausted; then the vapor or gas passes through the cartridge or canister and into the inside of the respirator. If you detect an odor or taste, or feel eye or throat irritation, leave the hazardous area immediately; go to a safe area that contains uncontaminated air. Then inspect your respirator for any physical failure. You must change the cartridge or canister on the respirator if no physical problems are detected. Because canisters and cartridges have a limited capacity and many pesticides lack warning properties (odor or irritation), DPR regulations require that air-purifying elements be replaced according to the most frequent of the following:

- pesticide labeling directions
- equipment manufacturer's recommendations
- at first indication of odor, taste or irritation
- at the end of each day's work period.

Air-purifying respirators (canister or cartridge) do not provide oxygen to the wearer. Do not use these respirators in situations where oxygen content of the air might be low. In these situations, use equipment capable of providing an independent source of breathing quality air, such as a SCBA or an air-line respirator.

Employees with facial hair cannot work where respiratory protection is required unless provided with a respirator that does not require a face-to-facepiece seal for proper operation.

Respirators only protect from inhalation exposure. In many pesticide use situations, protection from dermal exposure is probably also necessary.

Information Sources:

Additional information is available from several organizations and individuals. The following list provides sources for safety equipment and information:

1. Safety equipment retailers - see local telephone directory yellow pages.
2. Occupational safety and health consultants
3. Department of Pesticide Regulation, Worker Health and Safety Branch, 830 K Street, Sacramento, California 95814, (916) 445-4222.
4. County Agricultural Commissioner - see listing under County Government Offices, Agricultural Commissioner.

5. Cal/OSHA Consultation Service - see listing under State Government Offices, Industrial Relations Department, in local telephone directory.
6. County Health Department
7. Insurance carriers

Exemptions:

Users of antimicrobials (used only as sanitizers, disinfectants or medical sterilants) or pool and spa chemicals are exempt from complying with these provisions, provided you follow applicable sections of Title 8 of the California Code of Regulations. Applicable sections for respiratory protection include sections 3380 through 3385 and 5144.

In addition, these requirements do not apply to employees handling consumer products, if exposure is similar to that of the consumer.

This leaflet assists readers in understanding pesticide regulations. It is not a legal document. The California Code of Regulations, Title 3 is the legal reference for the requirements in this document. The words "must" and "should" used in the text are not the same. The word "must" means the action is required and comes from California regulations. The word "should" means additional handling practices that are recommended to further reduce exposure.

**SAMPLE WRITTEN SITE SPECIFIC OPERATING PROCEDURES
FOR THE SELECTION AND USE OF RESPIRATORS**

RESPIRATORY PROTECTION PROGRAM

Company Name_____

Address_____

Person Responsible for Program_____

I. Selection of Respirators

In the following pesticide-related uses, we require respirator use.

We base our selection of respirators on:

Personnel and selected respirator(s)

Employee

Respirator

_____	_____
_____	_____
_____	_____

Additionally, we have an area(s) or time(s) where emergency respiratory protection is necessary.

For this use, we have selected the following respirator(s).

II. Use of Respirators

The above employees received respiratory protection training. _____ (name) _____
conducted the initial training on _____. Attached is a list of more recent training.

On a periodic basis _____ (name) _____ conducts a routine inspection of respiratory gear.
Inspect equipment kept for emergency use at least monthly. Keep a record of the most recent inspection
on the respirator or its storage container.

EMPLOYEE STATEMENT OF MEDICAL CONDITION

(Print Employee Name)

In accordance of Section 6738 of the California Code of Regulations, to the best of my knowledge, I have (), have no () medical conditions which would interfere with wearing a respirator while engaged in potential pesticide exposure situations. I understand that heart disease, high blood pressure, lung disease or presence of a perforated ear drum require specific medical evaluation by a physician before safe use of a respirator can be determined.

(Signature of Employee)

(Date)

REPORT OF MEDICAL EVALUATION

In accordance with Section 6738 of the California Code of Regulations, I examined the employee listed above. For the employee named above, there is no current medical contraindication to wearing a respirator while working in potential pesticide exposure environments.

Other Comments: _____

(Printed Physician's Name)

(Physician's Signature)

(Date)

Pesticide Safety *Information*

Worker Health and Safety Branch

Series N

N-6 SUMMARY OF WORKER SAFETY REGULATIONS FOR THE NONCROP SETTING CALIFORNIA CODE OF REGULATIONS (CCR) TITLE 3, DIVISION 6

The pesticide worker safety regulations specify safe work practices for employees who handle pesticides. The term "handle" refers to any activity related to the application of pesticides. Handle includes mixing, loading, applying, repairing or cleaning contaminated equipment, and handling unrinsed containers. The Department of Pesticide Regulation and the local agricultural commissioner enforce the worker safety regulations. Important requirements of the regulations follow.

Employer/Employee Responsibilities (CCR 6702):

Employers must:

- know the regulations and requirements on pesticide labeling
- tell you, in a language you understand, about the pesticides used, pesticide safety hazards, personal protective equipment required, other equipment used, work procedures, and pesticide safety regulations
- ensure that their employees work safely and follow all safety rules.

Employees must:

- use the personal protective equipment (PPE)
- follow safety rules in regulations and on pesticide labeling.

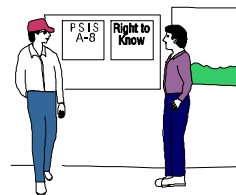
Hazard Communication (CCR 6723, 6723.1):

Hazard communication ensures that you know the hazards you may face and what to do to protect yourself from those hazards. Through proper hazard communication, you will know about the hazards, safe work practices and where records are kept. Pesticide Safety Information Series (PSIS) leaflet N-8, is the written hazard communication program for handlers. Your employer must display it for you to read. Your employer must also display the following for pesticide handlers to read:

- time and date of applications
- pesticide product name, active ingredient and EPA registration number

Your employer must make available to you:

- Material Safety Data Sheets (MSDS) for the pesticides used, if available
- PSIS leaflets applicable to the use situation



Training (CCR 6724, 6764):

If you handle pesticides, you must receive adequate training in the use of the pesticides. Training must occur before you begin to handle pesticides. Handlers must receive refresher training each year. Training of handlers must include the following for each pesticide or group of chemically similar pesticides (such as organophosphates):

- the meaning of information on the pesticide label concerning human health effects
- hazards of the pesticide, including acute and long term effects
- routine and emergency decontamination procedures
- symptoms of pesticide poisoning
- emergency first aid
- how to get emergency medical care
- routes pesticides can enter your body
- need, limitations, use and cleaning of required PPE
- prevention, recognition and first aid for heat-related illnesses
- safety requirements for handling pesticides
- environmental concerns
- warnings about taking pesticides home



- regulatory requirements, MSDS, and PSIS
- your rights as an employee
- location of the written hazard communication program.

Once training is received, you must sign the training record. Records of your training must be kept at your work headquarters.

You have the right to receive information about pesticides to which you may be exposed (or it can be given to your physician). You cannot be fired for exercising your rights.

Labels and Other Warnings (CCR 6602, 6618, 6674, 6678):

Pesticide labels must be available at the work site. If pesticides are transferred from their original container, the new container must be labeled with the identity of the pesticide, the signal word from the product label and the name of the person or firm responsible.

Before applying pesticides, the applicator must notify the person responsible for the property of the application. The notice must include:

- the date of the application
- the pesticide brand name or chemical name
- safety precautions required by label or regulations

The person responsible for the property must warn all persons on the property or likely to enter during application. The warning must include:

- date of the application
- the pesticide brand name or chemical name
- safety precautions required by label or regulations

Use Records (CCR 6624):

Records about when and where pesticides were used must be kept for most pesticide use situations. If your employer is required to keep use records, you have the right to see those records.

Emergency Medical Care (CCR 6726):

If you handle pesticides, your employer must make prior arrangements for emergency medical care, and tell you the location of the medical facility in case someone is sick or injured on the job. If you handle pesticides, your employer must post the following in a prominent place:

- the name, address and telephone number of the physician, clinic or emergency room able to provide care
- This information can also be posted in your work vehicle if there is no fixed work site.

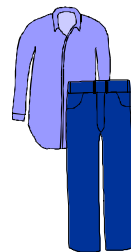
Decontamination and Hygiene (CCR 6732, 6734):

If you handle pesticides with the signal word "DANGER" or "WARNING", your employer must provide water, soap and towels for routine washing. There also must be water for emergency eye flushing and washing of the whole body. This decontamination site must be within 100 feet of the mixing/loading site.

In addition, your employer must provide a place to wash and change clothing after work, if you regularly handle pesticides that have the signal word "DANGER" or "WARNING." A change area is also required if you handle a pesticide for any length of time that is on the minimal exposure pesticide list.

Coveralls (CCR 6736, 6793):

Your employer must provide clean coveralls (1- or 2-piece garment that covers the body, except head, hands and feet) each day you handle pesticides with the signal word "DANGER" or "WARNING" or any minimal exposure pesticide. Your employer is responsible for washing coveralls. Washing other contaminated clothing is discussed in PSIS N-7.



Engineering Controls (CCR 6742, 6746, 6793):

Engineering controls are methods used to reduce exposure (closed system, water soluble packaging, etc.) other than personal protective equipment (respirators, gloves, etc.). Handlers may substitute personal protective equipment when using certain engineering controls. See PSIS N-3 for further explanation of engineering controls and allowed substitutions.

All application equipment must be inspected prior to use. Any repairs necessary must be made prior to use. Tanks on pesticide equipment used must have covers to prevent spills when in use.

Personal Protective Equipment (CCR 6738, 6793):

Your employers must provide all necessary personal protective equipment (PPE) and ensure it is clean and in good repair. You should not take that PPE home to be washed. Generally, the label lists the necessary PPE for the pesticide used. However, in California there are additional requirements that may not appear on labels. Some of these requirements follow:

Eye protection - Eye protection is required in the following situations:

- when stated on the label
- mixing/loading
- adjusting, cleaning or repairing pesticide-handling equipment
- ground application, except when injecting or incorporating pesticides into the soil, working in an enclosed cab or when spray nozzles are located below you and pointed downward
- hand application, except when applying vertebrate baits, using solid fumigants, baiting insect monitoring traps or applying non-insecticidal lures



Eye protection includes safety glasses (with front, brow and temple protection), goggles, face shield, or a full-face mask as part of respiratory protection. Regular eyeglasses or sunglasses **DO NOT** meet this requirement.

Gloves - Wear gloves when:

- required by the pesticide label
- mixing and loading
- adjusting, cleaning or repairing contaminated equipment
- all hand application activities (except vertebrate pest control using long-handled tools).

Gloves must be replaced or washed every day. It is especially important that gloves be washed on the **inside** as well as the outside, since residue can accumulate inside. **DO NOT** use leather or cotton gloves unless expressly permitted by the pesticide label.

Respiratory Equipment - When respiratory protection is required, your employer must adopt written

procedures for selecting, fitting, cleaning and maintaining the equipment. Employees with certain medical conditions, such as heart or a physician must evaluate lung disease, before being assigned to this kind of work. PSIS N-5 contains additional information on respiratory protection.



Chemical Resistant Clothing - Some pesticides with unusual hazards require the use of chemical resistant suits, footwear, head covering and/or apron. Use of this kind of clothing in warm temperatures may result in heat stress. Since the hazards of the pesticide will not allow its use without this kind of protection, the following rule applies if wearing the chemical resistant suit: Employees are prohibited from using pesticides with this clothing requirement when the temperature is above 80°F during the day or 85°F at night unless they are provided with cooled chemical suits. Some substitutions are allowed for chemical resistant clothing when using engineering controls (see PSIS N-3).

Cleaning/Repairing Equipment (CCR 6744):

If you clean or repair pesticide equipment, you must be fully informed of and protected from the hazards of working on that equipment.

Fumigants (CCR 6780, 6782, 6784):

Fumigants are pesticides used as a gas. A permissible exposure level (PEL) is established for most fumigants. These PELs must not be exceeded. It is your employer's responsibility to know that you are not being overexposed or to provide approved respiratory protection. Where fumigants are used, your employer must have an accident response plan that tells you what to do in case of a spill, leak or fire. You must know what is in the plan.

You cannot detect some fumigants by odor, taste, irritation or sight. For these fumigants, your employer must know or anticipate possible exposure from routine work activities. Your employer must determine whether:

- your exposure does not exceed the PEL, in which case no respiratory protection is required during those times

- your exposure will exceed the PEL, in which case approved respiratory protection is required
- employee exposure is variable (that is, there are times when the levels exceed the PEL and times when it does not).

You must wear approved respiratory protection all of the uncertain times unless there is continuous monitoring at the work site. If there is continuous monitoring, respiratory equipment is necessary only when monitors indicate air levels are over the PEL.

Two trained employees must be present when fumigating enclosed spaces. Post warning signs prior to the fumigation of enclosed spaces.

Minimal Exposure Pesticides (CCR 6790-6793):

The following pesticides are on the minimal exposure pesticide (MEP) list:

- propargite (Omite[®], Comite[®]) - agricultural pesticide
- folpet - nonagricultural pesticide
- bromoxynil (Buctril[®]) - agricultural and nonagricultural pesticide
- oxydemeton-methyl (Metasystox[®]-R) - agricultural and nonagricultural pesticide

The hazards of using these pesticides require special safety rules regardless of the toxicity category of the pesticide. These rules are:

- a change area must be provided
- washing facilities must be at all mix/load sites
- clean work clothing must be provided each day;

- a closed system must be used for liquid pesticides or liquid dilutions of pesticides
- handlers of MEPs must wear clean or new chemical resistant suits (except when using some engineering controls - see PSIS N-3)
- use respiratory protection when applying by hand or ground (except when using some engineering controls).

Exemptions:

The worker safety requirements do not apply to employees handling consumer products that are for general public use as long as employee exposure is not greater than expected consumer exposure.

When antimicrobials (used only as sanitizers, disinfectants and medical sterilants) or pool and spa chemicals are used, your employer does not have to follow these regulations, provided Cal/OSHA regulations are followed.

You may examine a complete set of these regulations at your local county agricultural commissioner's office.

This leaflet assists readers in understanding pesticide regulations. It is not a legal document. The legal reference can be found in the California Code of Regulations, Title 3. The words "must" and "should" used in the text are not the same. The word "must" means the action is required and comes from California regulations. The word "should" means additional handling practices that are recommended to further reduce exposure.

Pesticide Safety *Information*

Worker Health and Safety Branch

Series N

N-7

LAUNDERING PESTICIDE CONTAMINATED CLOTHING FOLLOWING USE OF NONAGRICULTURAL PESTICIDES

General Information:

This leaflet provides information about removing pesticide residues with non-commercial laundry machines. The clothing of other family members may become contaminated, if pesticide-contaminated clothing contacts other clothing in the wash. In addition, persons handling that clothing may get pesticides on their skin if not properly protected. If you follow the information in this guideline pesticide exposure of persons doing the laundry and their family should be minimized.

California pesticide worker safety regulations require employers to provide clean coveralls for each employee who handles pesticides (mixes, loads, applies, and repairs or cleans pesticide-contaminated equipment) with the signal word "Warning" or "Danger." Coveralls are a one- or two-piece garment that covers the body except for head, hands and feet. Your employer must ensure that you wear clean coveralls at the start of each work day and change out of that clothing and wash at the end of the work day when you handle pesticides with the signal word "Danger" or "Warning". You should not take potentially contaminated coveralls home. If your work day does not involve a return to your headquarters, you must:

- remove your contaminated coveralls at work
- store them in a sealable container outside your living quarters
- return them to the employer.

Always store contaminated personal protective equipment (PPE) separately from clean coveralls. It is your employer's responsibility to provide for the washing of coveralls, and to inform the person doing the laundry that the clothing may be contaminated with pesticides and should be washed separately.

Normal work clothing (even under coveralls or other PPE) can become contaminated with pesticides. In addition, your clothing may be contaminated if you work around treated plants or lawns. When washing any pesticide contaminated clothing with home laundry equipment, do it in a manner that prevents exposure of family members to unwashed clothing or the rinse water.

If you spill very toxic pesticide concentrate on your clothing, take them off immediately. Do not launder; dispose of the clothes according to state and local laws. Throw away leather items contaminated with pesticides; they cannot be adequately cleaned. Wash contaminated clothing as soon as possible.

Laundering Contaminated Clothing:

Consider the following measures when washing pesticide-contaminated clothing at home.

Precautions and Personal Protection.

- Wear rubber gloves when handling contaminated clothing.
- Keep all contaminated clothing in closed plastic bags outside the house, out of the reach of children and pets, until ready to wash.
- DO NOT put in the family laundry basket.
- Multiple washings of clothing may be necessary if contaminated with extremely toxic pesticides.
- Wash hands immediately after handling pesticide contaminated clothing.

Loading the Washer.

- Wash contaminated clothing separately from the rest of the family laundry.
- If possible, use a separate washer.
- Dump contaminated clothing directly into the washer from the plastic bag.
- Keep the washing area well ventilated.

Load Size.

- Place only a few pieces of clothing into the washer at one time.
- It will help ensure good agitation.

Pre-rinse.

- In an automatic washer, allow the washer to agitate and spin the first wash water out in order to dilute pesticide and increase removal.
- Then run through the full wash cycle.
- If your washer doesn't have a pre-soak cycle, run clothing through the wash cycle twice.

Water Level.

- Set the washer to the extra large or large load setting to flush clothing thoroughly and dilute any pesticide present.

Water Temperature.

- Use the HOT water setting.
- Hot water increases pesticide removal.

Wash Cycle.

- Use the LONGEST wash cycle.
- A double rinse is recommended.

Detergent.

- Use a HEAVY-DUTY liquid or powdered detergent as recommended on the package.
- If there is a stain, use a prewash stain and soil remover. Remember to use rubber gloves when handling clothing.



Water Hardness.

- Hard water can deactivate detergent, and thus can affect pesticide removal.
- Use a mechanical water softener in areas with hard water.

Additives.

- Neither bleach nor ammonia seems to affect removal of most pesticides.
- Never use both, since this combination forms a highly toxic gas.



Cleaning the Washing Machine.

- After laundering pesticide-contaminated clothing, clean the washing machine.
- Run it empty through a complete cycle, using hot water and detergent.

Drying.

- Line drying is the preferred method.
- It will prevent contamination of the dryer, and the sunlight may also help degrade any remaining pesticide residues.
- When using a dryer, run it until the clothing is completely dry.
- After drying, run the empty dryer for about 10 minutes.

Tips for Reducing Pesticide Exposure of Family Members:

- Remove contaminated clothing at the work site and put in plastic bags.
- Empty pockets and cuffs at the work site.
- Shower at the end of the work day. Use clean water and soap.
- Inform the person doing the laundry at home that the clothing is pesticide-contaminated and how to launder it.

REMEMBER: It is your employer's responsibility to wash contaminated coveralls and other PPE that he provides to you to use on the job.

Pesticide Safety *Information*

Worker Health and Safety Branch

Series N

N-10

MINIMAL EXPOSURE PESTICIDES In Noncrop Settings

General Information:

The Minimal Exposure Pesticide (MEP) list was established to inform users about pesticides with hazards not identified by the well known label signal word system of "DANGER", "WARNING" or "CAUTION". Every pesticide label contains one of these signal words. The use of signal words began many years ago. The U.S. Environmental Protection Agency continued use of the signal words when given authority to regulate pesticides by the U.S. Congress in 1972. Signal words give the user a good idea of the pesticide's ability to cause immediate (acute) illness or injury.

We are learning that some pesticides may cause other kinds of health effects. If exposed to these pesticides, you may not notice any effects for a long time after the exposure. Some of these health effects (like cancer) can be caused by exposure to small amounts of pesticide over a long period of time. Other effects (such as birth defects) may be caused by exposure to very small amounts of pesticide at a critical time. These types of adverse effects are not identified by the signal words on the label. Because of these problems, the Minimal Exposure Pesticide regulations were developed to inform workers about the potential effects of some pesticides.

Some MEP labels will have the signal word "CAUTION" on them. This normally means that a worker handling that particular pesticide might not need to be as careful when handling it. This is not true for MEPs. One may not become sick or injured, at least not right away, from excessive exposure to a pesticide on the MEP list. But, that exposure could be doing damage in your body if handled carelessly.

Minimal Exposure Pesticides:

1. Bromoxynil (Buctril®)
Bromoxynil is a herbicide primarily used to kill weeds in agricultural crops. However, there are some noncrop uses; these include rights-of-way, landscape maintenance, and ornamental turf. In experimental animals, it has been shown to cause birth defects and harmful effects in the pregnant animal. These effects may occur at very low levels of exposure.
2. Oxydemeton-methyl (Metasystox-R)
Oxydemeton-methyl is an insecticide and miticide used on primarily on fruit, nut and vegetable crops. It too has noncrop uses; these include landscape maintenance and rights-of-way. Oxydemeton-methyl affects an enzyme necessary for proper functioning of the nervous system. Acute poisoning leads to symptoms like headache, nausea, vomiting, weakness and blurred vision. Oxydemeton-methyl caused adverse effects on the male reproductive system at very low levels.
3. Propargite (Omite®, Comite®)
Propargite is used only in the production of agricultural crops.

Folpet is also listed as an MEP. However, currently the only products registered are paints, coatings and caulking. These products are exempt from the MEP requirements.

MEP Use Requirements:

The MEP regulations apply regardless of the signal word on the label. In addition to following the safety precautions on the label and in California regulations,

your employer must provide the following if you handle MEPs:

- An area with clean towels, soap and water where workers can change clothes and wash at the end of the day
- A clean, pesticide-free place for employees to store personal clothing not in use while handling pesticides
- Clean towels, soap and clean water at the mix/load site for routine or emergency washing
- Clean coveralls (one- or two-piece garment that covers the body except the head, hands and feet); your employer must ensure that you start each work day with clean coveralls
- A closed system for mixing and loading, except for employees who handle a total of one gallon or less per day in original containers of one gallon or less
- Clean full-body, chemical resistant clothing that covers the head, torso, arms, hands, legs and feet
- Appropriate, clean respiratory protection.

Exemptions And Additional Precautions:

Oxydemeton-methyl

- Application to ornamental landscape trees and shrubs must be made by trunk injection or soil injection methods only

There are some general exemptions to the MEP requirements for full body protective clothing when using engineering controls. The following table explains those substitutions allowed.

This leaflet assists readers in understanding pesticide regulations. It is not a legal document. The legal reference can be found in the California Code of Regulations, Title 3. The words "must" and "should" used in the text are not the same. The word "must" means the action is required and comes from California regulations. The word "should" means additional handling practices that are recommended to further reduce exposure.

Allowed Substitutions for PPE When Using Engineering Controls

When using the following:	Handlers may substitute:*	For the following:
Closed system for pesticides with "Danger" or "Warning"	Coveralls, chemical resistant gloves and chemical resistant apron	PPE required on the pesticide labeling
Closed system for pesticides with "Caution"	Work clothing	PPE required on the pesticide labeling
Closed system under positive pressure	Protective eyewear**	
Mixing pesticides in water soluble packets	Use in water soluble packets***	Use of a closed mixing system
Enclosed cab	Work clothing and respiratory protection required	PPE required on the pesticide labeling
Enclosed cab acceptable for respiratory protection	Work clothing	PPE required on the pesticide labeling
Any pesticide	Chemical resistant suit	Coveralls and a chemical resistant apron

* For any substitution, all PPE required by the label must be available in case of an emergency

** Protective eyewear is required in addition to coveralls, chemical resistant gloves and apron for pesticides with "Danger" or "Warning" or in addition to work clothing for pesticides with "Caution" on the label

*** Using pesticides in water soluble packets is equivalent to mixing with a closed system. However, transfer from mix tank to application tank must be made with closed transfer equipment.

Pesticide Safety *Information*

Worker Health and Safety Branch

Series N

N-8

HAZARD COMMUNICATION FOR EMPLOYEES HANDLING PESTICIDES IN NONCROP SETTINGS *

* **Employers: Fill in the blank lines on this page and display this handout at the employee's work site.**

General:

This handout tells you about your right to know the pesticide dangers at work and about the Department of Pesticide Regulation (DPR) rules on "Hazard Communication" in California. "Hazard Communication" is a program to make sure you know about the dangers at work, how to protect yourself from those dangers, and where to get information about the dangers and safety procedures.

Pesticides are chemicals commonly used on to kill insects, weeds, germs and plant diseases on farms, as well as, in non-agricultural settings (landscape, parks, restaurants or hospitals). Fertilizers are not pesticides.

The label on the pesticide, training, and other forms of warning tell you of the dangers. Your boss must know and tell you (in a language you understand) about the pesticides you will use, and how to protect yourself and safely use them.

Your Rights As An Employee:

By law you must be told about possible dangers where you work. You must also be trained to recognize and avoid those dangers. As an employee you have the following rights:

- You have the right to know what pesticides were sprayed and to look at the application records. The required records are kept at:

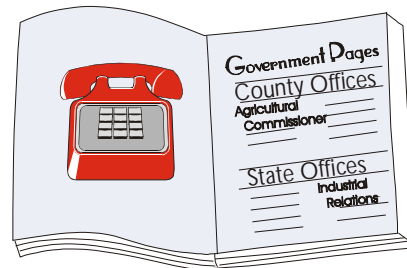
- You have the right to file a complaint about the dangers at work without being punished or fired. Your boss will not be told who filed the complaint.

- You have the right to look at Material Safety Data Sheets (MSDS), if available, for each pesticide used. These documents tell you about the pesticides and their dangers.
- Your boss must plan ahead for medical care and make sure that you are taken to the doctor if you get sick or hurt because of pesticides at your job. Medical care is available for you at:

- If you get sick or injured on the job, you have the right to file a claim for worker's compensation. Workers' compensation will pay for your medical costs, and in some cases, lost pay.

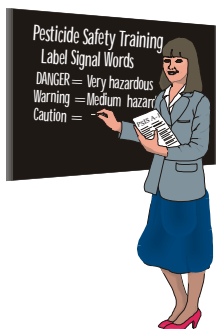
Your boss will explain your rights to you. If you need more help in understanding your rights, you may contact the local county agricultural commissioner's office, the local legal aid or worker's rights office, your union or DPR at: Anaheim (714) 680-7800; Fresno (559) 445-5401 or Sacramento (916) 372-6892.

Pesticides are only one kind of danger at your work. Complaints about pesticide dangers should be filed with the county agricultural commissioner. Complaints about other safety problems should be filed with the California Department of Industrial Relations-Cal/OSHA office. The telephone numbers can be found in the government pages of the telephone book.



Training/Education:

Training is one important way to learn about pesticide dangers and how to protect yourself from the pesticide. If you work with pesticides, you must be given training about using pesticides and pesticide equipment safely. The training must occur before you begin to work with pesticides. You must be given refresher training each year to help remind you how to handle pesticides safely. You must know the immediate and long-term dangers the pesticides can cause and how to safely use the pesticides you will work with. Pesticide Safety Information Series (PSIS) handout N-1 tells you everything that must be part of your pesticide training. Extra training is needed if you use respirators (see PSIS handout N-5). All information that was part of your training must be written down and you must sign the paper to show you have been trained, but only after you have finished the training.



You must be told where you can see the work-related papers that must be made available to you (see Table 2). You do not need to ask your boss' permission to look at these records.

Hazard Identification:

The pesticide label tells you what chemicals are in the container, information about the pesticide, first aid, warnings, protective equipment needed and directions for application. Other chemicals, called "inert ingredients", are not usually written on the label. These other ingredients can also make you sick. Doctors who need to know the names of the ingredients to treat you can usually get that information from the company who makes the pesticide or from DPR.

Before a pesticide can be used in California, tests are done to find out about its harmful effects. The pesticide label gives you information on the dangers of using the pesticide. All pesticides are poisonous. If you are exposed, they can harm you or make you sick.

- "DANGER" means the pesticide is very poisonous; touching or breathing very small amounts can cause serious harm or sickness.

- "WARNING" means moderate danger; it takes exposure to more pesticide to make you sick or hurt.
- "CAUTION" means the danger is low; it can still cause harm or sickness, but requires contact to much more pesticide

In addition, the label also tells you about more specific dangers and the safety measures you need to follow. You must know and follow those precautions.

- If the pesticide causes serious eye or skin injury, the label will say something like, "Corrosive, causes eye and skin damage."
- If the pesticide can make you very sick, the label will have a skull-and-crossbones symbol and the word "POISON."
- Words like "fatal" or "may be fatal if swallowed, inhaled, or absorbed through the skin" also means the pesticide can make you very sick or cause death if you are exposed to too much.
- Some labels tell you about other health problems such as cancer or birth defects.

You cannot rely only on the pesticide label to tell you of the dangers. Your boss must have a copy of the MSDS for the pesticide(s) sprayed and must tell you where you can go look at it. Other sources of safety information may include industry trade bulletins, and government hazard alerts and other Pesticide Safety Information Series handouts like this one.

Labels And Other Forms Of Warnings:

In addition to training, there are many other ways that information is given to you (see Table 2 on page 4). The pesticide label tells you how to safely mix and apply the pesticide. The label must be at the your work site when you mix or apply the pesticide. Normally this is the label on the pesticide container. It can also be on a "product bulletin" or other additional labeling. If a service container (any container that is not the original factory container) is used, your boss must make sure that the complete label is at your work site. Service containers must be labeled to identify the pesticide, the signal word (Danger, Warning, Caution), and who is responsible for the container and the pesticide in it.

Pesticide Name	
EPA Registration No.	
Active Ingredients	xx%
Inert Ingredients	x%
DANGER	
Statement of Practical Treatment	
Precautionary Statements	
Hazards to Humans	
Personal Protective Equipment	
Environmental Hazards	
Nonagricultural Use Requirements	
Directions for Use	

When possible, keep pesticides in their original container with the original label. Never use food, drink, or household product containers for pesticides.

Most places where pesticides are stored must be locked and posted with warning signs. The signs must be in a language you understand. More information on pesticide storage, transportation and disposal is found in PSIS handout N-2.

In 1986, a law called the *Safe Drinking Water and Toxic Enforcement Act of 1986* (Proposition 65) was passed. Proposition 65 requires California to make a list of chemicals that can cause cancer, birth defects, or other reproductive harm. The Proposition 65 list

contains many chemicals, including dyes, solvents, pesticides, drugs, and food additives. If a pesticide is on the Proposition 65 list, your boss must warn you if you might be exposed to enough pesticide to result in a significant risk of cancer, birth defects or other reproductive harm. Your boss may also warn you if a pesticide on the Proposition 65 list has been sprayed, even if health problems are not likely. Your boss is required to keep specific information on each pesticide application. You have a right to look at this information; in your training, you should be told where you can find it. If you are unsure of the location, ask your boss. Table 1 lists pesticides that are on the Proposition 65 list and might be used in California.

Table 1
CURRENTLY REGISTERED PESTICIDES ON THE PROPOSITION 65 LIST

PESTICIDES KNOWN TO THE STATE TO CAUSE CANCER

Alachlor	<i>p</i> -Dichlorobenzene	Lindane	<i>o</i> -Phenylphenol Propargite
Arsenic acid	1,3-Dichloropropene	Mancozeb	Pronamide (propyzamide)
Arsenic pentoxide	Diethyl phthalate	Maneb	Propylene oxide
Arsenic trioxide	Dipropyl	Metam sodium	Silica aerogel
Cacodylic acid	isocinchomeronate	Metiram	Sodium dichromate
Captan	(MGK repellent 326)	Oxadiazon	Sodium
Chlorothalonil	Ethylene oxide	Oxythioquinox	dimethyldithiocarbamate
Chromic acid	Fenoxycarb	Pentachlorophenol	Thiodicarb
Creosote	Folpet	<i>o</i> -Phenylphenate, sodium	Vinclozolin
Daminozide	Formaldehyde (gas)	(<i>o</i> -phenylphenol, sodium)	
DDVP (dichlorvos)	Iprodione		

PESTICIDES KNOWN TO THE STATE TO CAUSE BIRTH DEFECTS OR REPRODUCTIVE HARM

Amitraz	Disodium	Methyl bromide (as a structural fumigant)	Propargite
Arsenic, pentoxide	cyanodithioimido		Resmethrin
Arsenic, trioxide	carbonate	Myclobutanil	Sodium fluoroacetate (1080)
Benomyl	EPTC (ethyl dipropylthiocarbamate)	Nabam	Streptomycin sulfate
Bromacil, lithium salt	Ethylene oxide	Nicotine	Thiophanate methyl
Bromoxynil octanoate	Fenoxaprop ethyl	Nitrapyrin	Triadimefon
Chlorsulfuron	Fluazifop butyl	Oxadiazon	Tributyltin methacrylate
Cyanazine	Fluvalinate	Oxydemeton-methyl	Triforine
Cycloate	Hydramethylnon	Oxythioquinox	Vinclozolin
2,4-D butyric acid (2,4-DB)	Linuron	Potassium dimethyldithiocarbamate	Warfarin
Diclofop methyl	Metam sodium		
	Metiram		

Records:

There are many papers your boss must keep and make available for you read (see Table 2). These papers can be grouped into two general kinds, training and exposure.

Training. Your boss must keep a written record of the training provided to you.

Exposure. Your boss must keep records for all pesticides you apply.

Emergency Medical Care:

If you become ill or are injured on the job you must be taken for medical care. Do not drive yourself if you are ill or injured.

More information on first aid is available in PSIS handout N-4.

Other PSIS handouts mentioned in this document should be part of your training. They are free and are available from your boss and the local agricultural commissioner's office.

This leaflet helps you to learn about pesticide regulations. It is not a legal document. The legal reference can be found in the California Code of Regulations, Title 3. The words "must" and "should" used in the text are **not** the same. The word "must" means the action is required and comes from California regulations. The word "should" indicates extra safety practices that are recommended to help reduce pesticide exposure.

Table 2

SUMMARY OF "HAZARD COMMUNICATION" RECORDS

Information	Kept for:	Location	Section ¹
Training records	2 years	Boss' office site	6724(e)
Written training program	2 years	Boss' office site	6724(a)
Respirator program procedures	During use	Boss' office site	6738(h)
Accident response plan (fumigants)	During use	Work site	6780(d)
Pesticide Label	During use	Work site	6602
Pesticide Safety Information Series	2 years	Boss' office site	6723(b)
Material Safety Data Sheet	2 years	Boss' office site	6723(b)
Storage area posting ²	During use	Storage area	6674
Emergency medical care notice	During use	Work site	6726
Medical evaluation (respirator use)	During use	Boss' office site	6738(h)
Pesticide use records	2 years	Boss' office site	6624

¹ Rules are found in the California Code of Regulations, Title 3 and the section listed in this column

² Required only for pesticides with the Signal word "DANGER" or "WARNING"

Your county agricultural commissioner can provide additional information about these requirements.
